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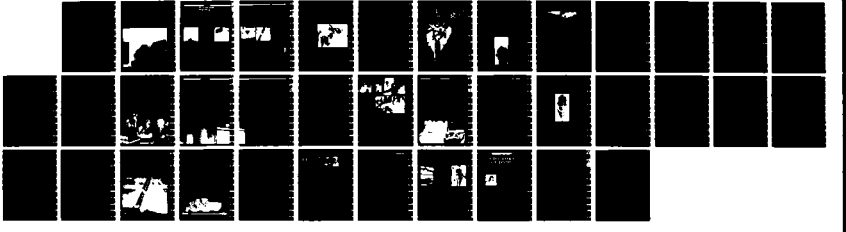

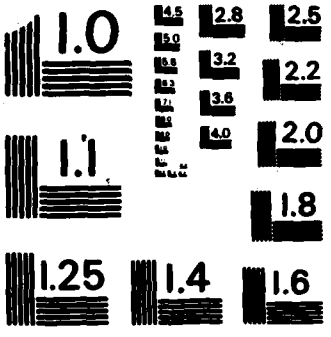

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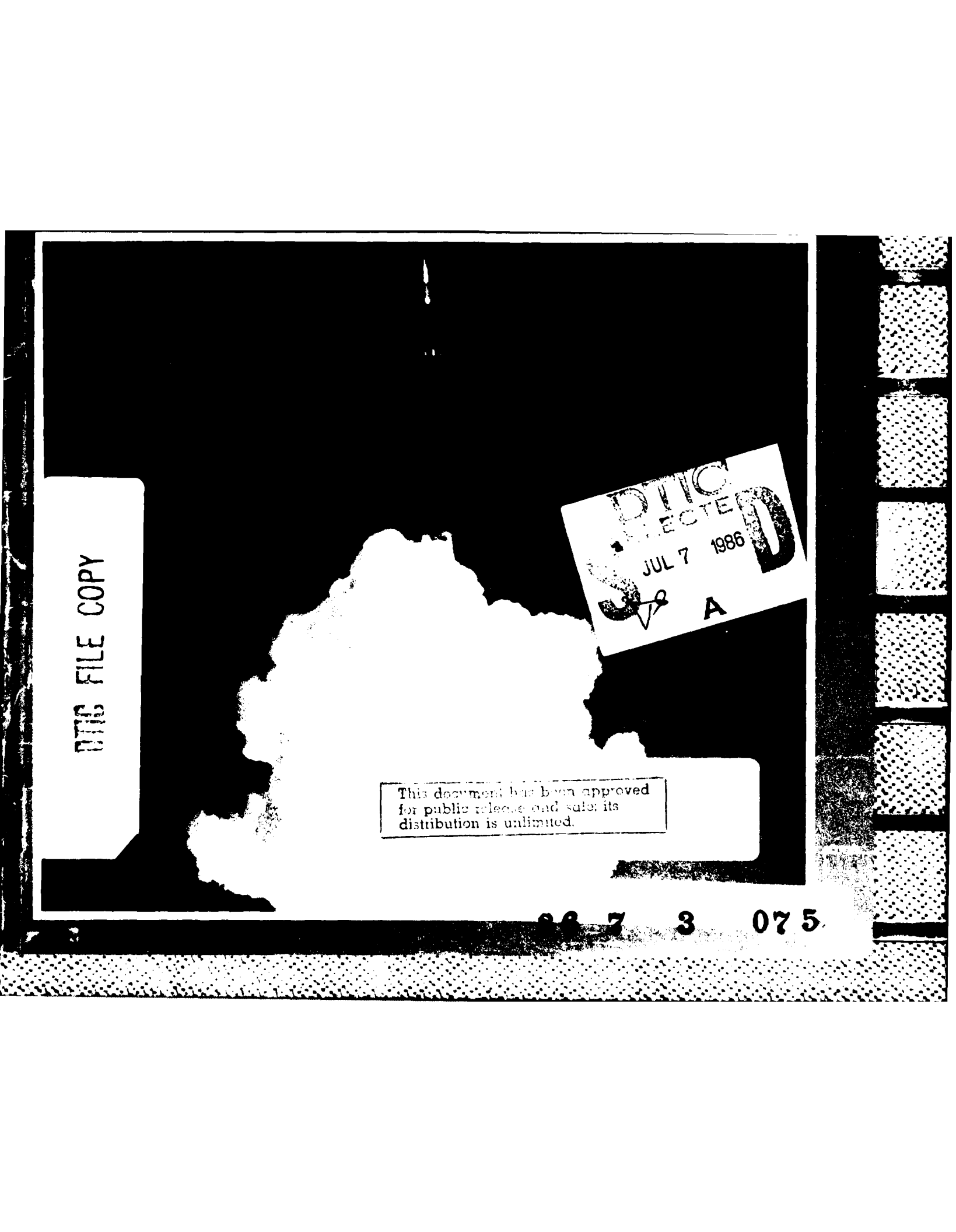
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CONTENTS

Program Manager

Vol. XV, No. 3
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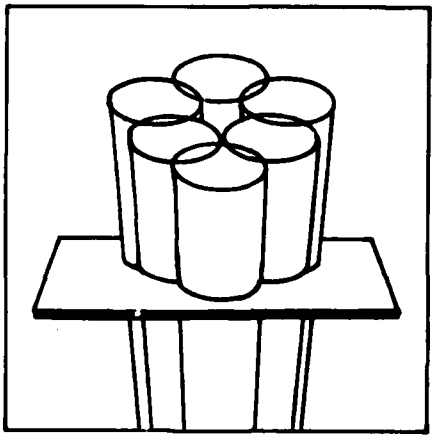
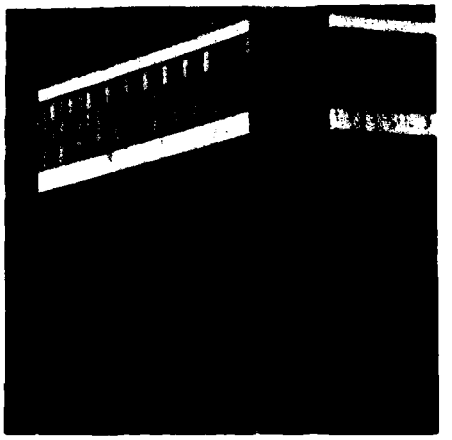
May-June
1986

Cover: A Peacekeeper missile, the most accurate ICBM in the world, flies out of its silo. The Peacekeeper will be based in modified Minuteman III silos at F.E. Warren AFB near Cheyenne, Wyo.





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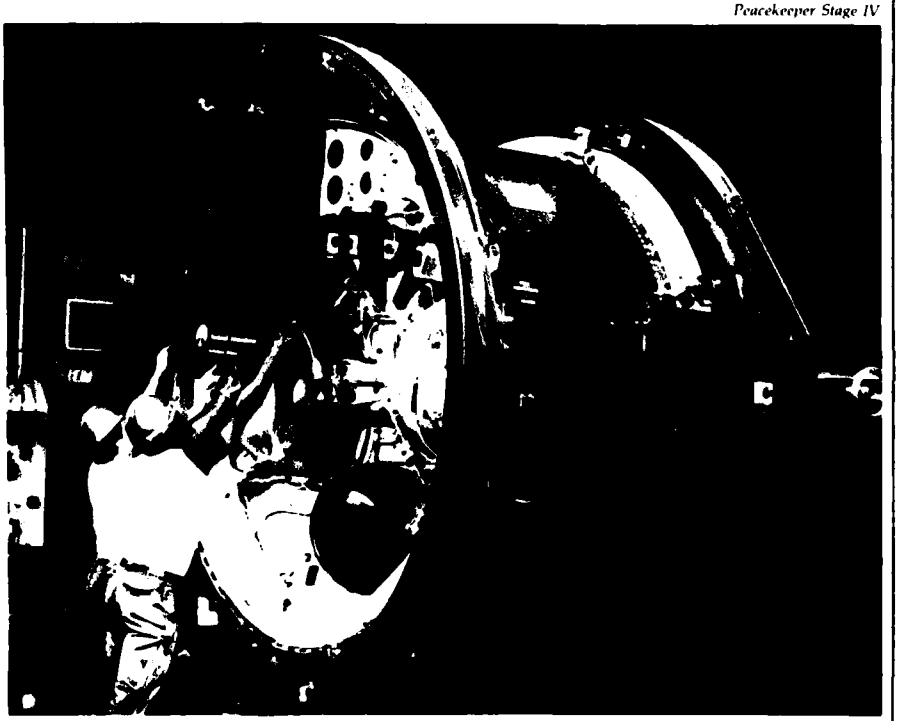
Increasing Competition through Streamlined Source Selections

The Challenge of Competition in Government Contracting

Major General Aloysius G. Casey, USAF
Captain Michael D. Williams, USAF

Peacekeeper Stage IV



Within the past 5 years, the Congress has been very concerned with the government procurement process. One of their keen interests has been to increase the amount of competition in federal contracting. Program managers in all branches of government, but especially in the Department of Defense, have had to increase competition while at the same time trying to maintain their responsiveness to their agencies' missions. We at the Ballistic Missile Office (BMO) have helped solve this problem by implementing a procedure that reduces the amount of time it takes to select a contractor and award contracts. An additional benefit to our approach is its reduced cost, both for the government and the contractor. This procedure, created by the BMO contracting deputate, is called the streamlined source selection procedure.

Traditional Air Force Source Selection

As described in Air Force Regulation 70-15, the purpose of a source selection is to "select the source whose proposal has the highest degree of credibility and whose performance can be expected to best meet the government's requirements at an affordable cost." The regulation describes requirements, constraints, and major events for all Air Force source-selections. Major events can be grouped into two categories, pre-evaluation activities, and proposal evaluation/source selection decision. The streamlined process primarily changes the proposal evaluation phase.

Using the traditional method, the source selection team consists of six groups (see Figure 1):

—Source Selection Authority (SSA), usually the commander.

—Source Selection Advisory Council (SSAC), senior government officials who help the SSA with the source selection process.

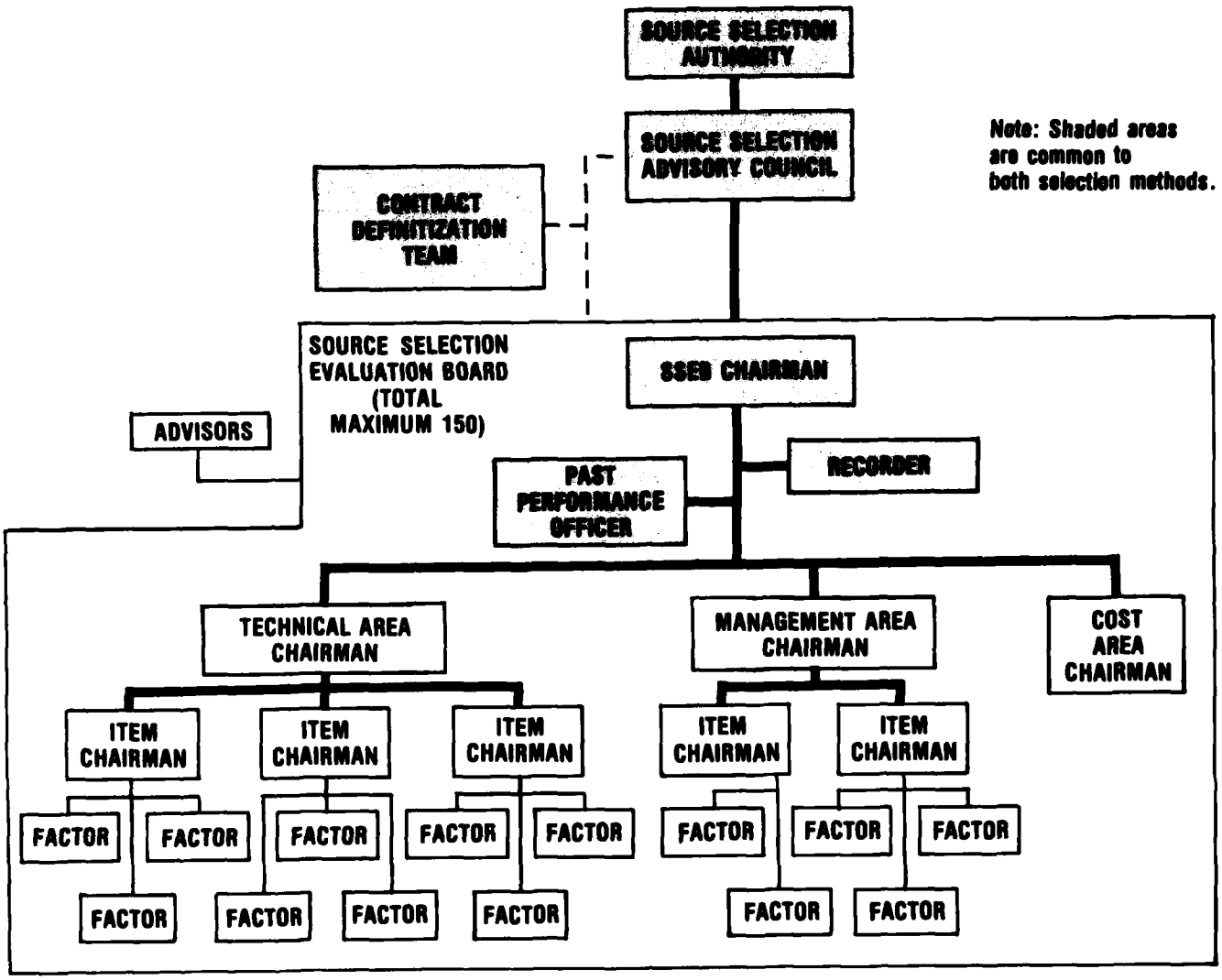
—Contract Definitization Team, the procuring contracting officer, buyer, and lead project officer.

—Advisors, government and non-government personnel who may be asked to help at any level of the source selection organization.

—Source Selection Evaluation Board (SSEB).

The SSEB comprises a chairman, recorder, past performance officer, and sufficient personnel to perform the evaluation. If areas to be evaluated are, for example, technical, management, and cost, then the technical area

Figure 1. Source Selection Board
Air Force Regulation 70-15



chairman could have three to eight item chairmen; management could have three to four. Each item chairman may have up to 12 factor chairmen. The factor chairmen evaluate each proposal for their specialty; e.g., integrated logistics, performance characteristics, test program, etc. They read only the sections of each proposal necessary to score their factor; on some proposals there may be more than 80 factors. Because of this large number of items needing review and evaluation, people on the SSEB may number 150.

Traditionally, time required for proposal evaluation (measured from receipt of proposals to decision recommendation) has taken up to 18 weeks. This can be an expensive event for contractors and government. Contractors have to keep their proposal team together throughout the evaluation to answer questions; the government has to provide at least 150 people (SSEB, SSAC, etc.) for an extended evaluation.

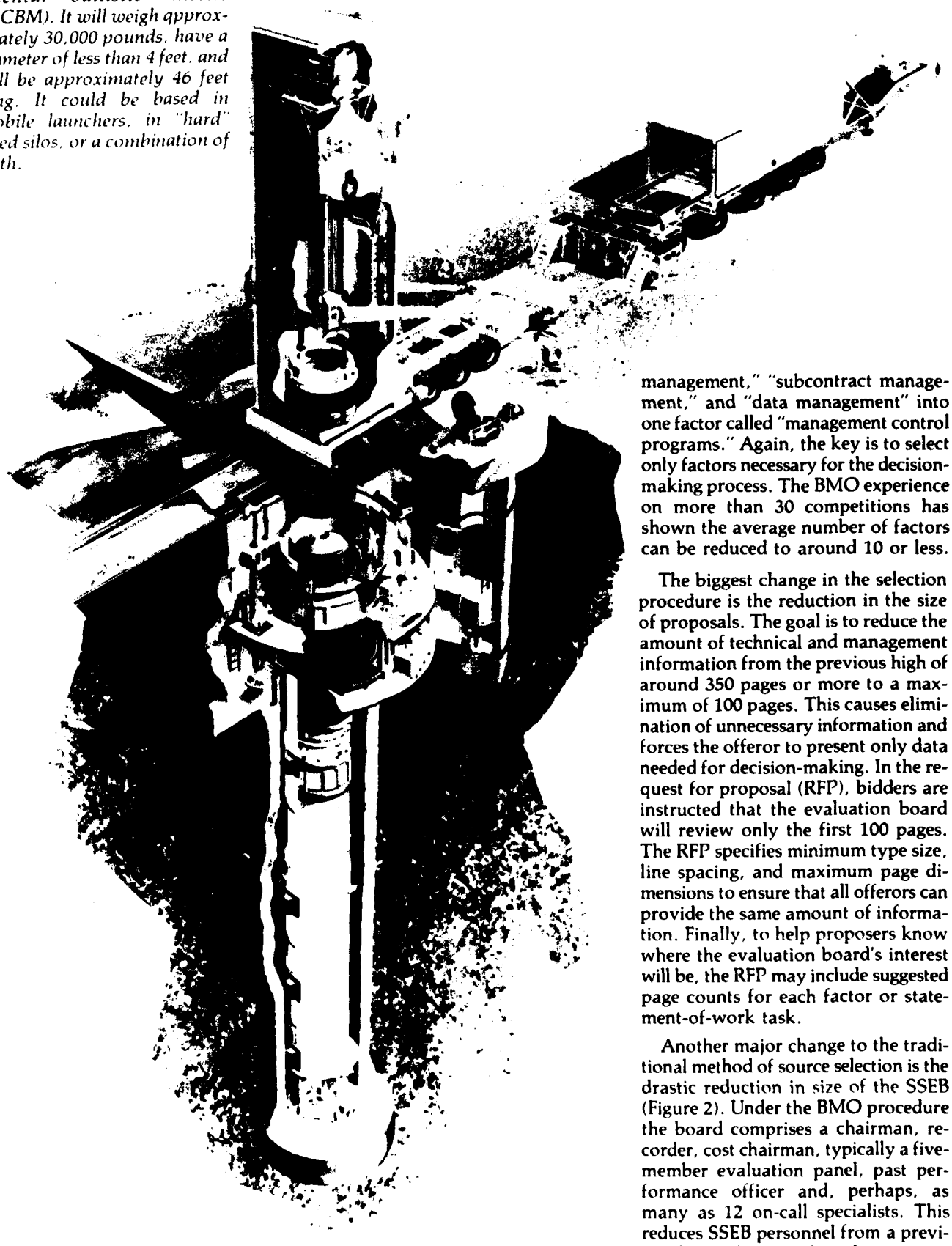
Streamlined Source Selection

The streamlined source selection procedure is designed to obtain the best possible contract while reducing contractor and government expense, compressing source selection schedules, eliminating total reliance on written proposals, and improving the evaluation process. It meets these with the following five major changes to the traditional selection method:

—Reduced number of evaluation factors
—Reduced size of proposals and strict enforcement of page limitations
—Reduced evaluation board membership with expanded responsibilities
—Added contractor oral presentations (discussions)
—Reduced evaluation time.

Evaluation factors are chosen to give evaluation members and the SSA confidence in a contractor's abilities and to serve as discriminators. The thrust now is to reduce these factors to the minimum number needed to evaluate successfully each proposal and form a basis for the SSA decision. On some acquisitions, technical and management areas are combined so that management becomes an item. Management items and factors are then combined into a smaller number of factors; for example, combining the standard factors of "cost/schedule

This is a mockup of a new single-warhead, small intercontinental ballistic missile (SICBM). It will weigh approximately 30,000 pounds, have a diameter of less than 4 feet, and will be approximately 46 feet long. It could be based in mobile launchers, in "hard" fixed silos, or a combination of both.



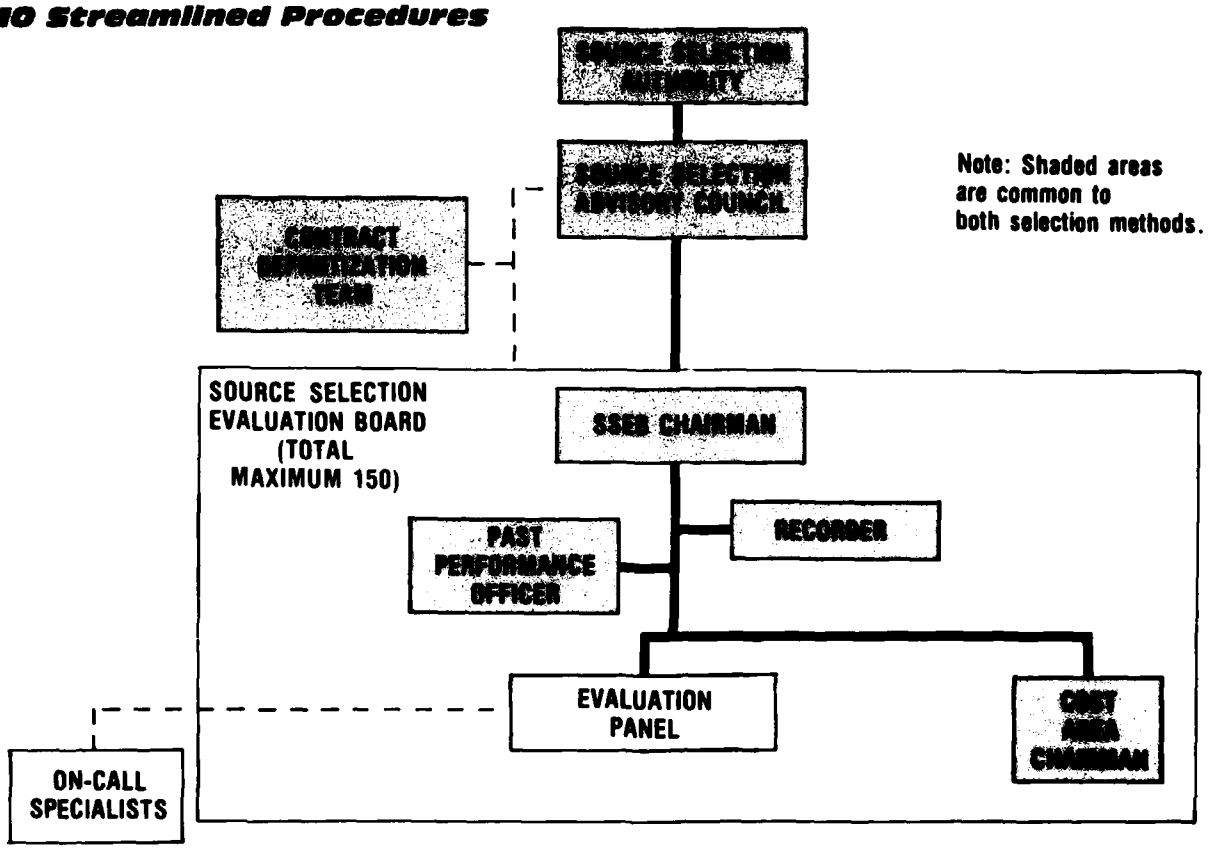
Mockup of single warhead small ICBM

management," "subcontract management," and "data management" into one factor called "management control programs." Again, the key is to select only factors necessary for the decision-making process. The BMO experience on more than 30 competitions has shown the average number of factors can be reduced to around 10 or less.

The biggest change in the selection procedure is the reduction in the size of proposals. The goal is to reduce the amount of technical and management information from the previous high of around 350 pages or more to a maximum of 100 pages. This causes elimination of unnecessary information and forces the offeror to present only data needed for decision-making. In the request for proposal (RFP), bidders are instructed that the evaluation board will review only the first 100 pages. The RFP specifies minimum type size, line spacing, and maximum page dimensions to ensure that all offerors can provide the same amount of information. Finally, to help proposers know where the evaluation board's interest will be, the RFP may include suggested page counts for each factor or statement-of-work task.

Another major change to the traditional method of source selection is the drastic reduction in size of the SSEB (Figure 2). Under the BMO procedure the board comprises a chairman, recorder, cost chairman, typically a five-member evaluation panel, past performance officer and, perhaps, as many as 12 on-call specialists. This reduces SSEB personnel from a previous high of 150 to less than 10, ex-

Figure 2. Source Selection Board BMO Streamlined Procedures



cluding specialists. The major reduction comes in the evaluation panel. Instead of having specialists evaluating portions of each proposal, a board of qualified, multidisciplined generalists review the entire proposal (except cost) of each bidder. The reduction in the factors and in page-count makes single-person review possible. Thus, each evaluator has an understanding of the entire proposal and can better judge the merits of every offeror. A key advantage of this is that it allows the source selection authority to poll each evaluator individually and base the selection decision on more direct, not merely summary, information.

Peacekeeper ICBM

To help supplement the proposal review, the new procedure requires all offerors in the competitive range (those bidders determined to have a reasonable chance of being selected) to give an oral presentation to the evaluation board. This is normally limited to a one-hour briefing followed by a maximum of a one-hour question and answer session. Proposers are limited to a standard number of attendees, usually five to seven, and are encouraged to be represented by program management/technical experts in lieu of marketing personnel. Evaluation board members and offerors have been pleased with this direct interchange. They feel it greatly increases the board's comprehension of the proposal and gives them a face-to-face understanding of the management/technical capability of each offeror.

The driving reason behind the streamlined source selection procedure is to reduce the time necessary for contract award. With a proposal that can be evaluated by one person, the five-person evaluation panel can do the same work as the earlier area-item-

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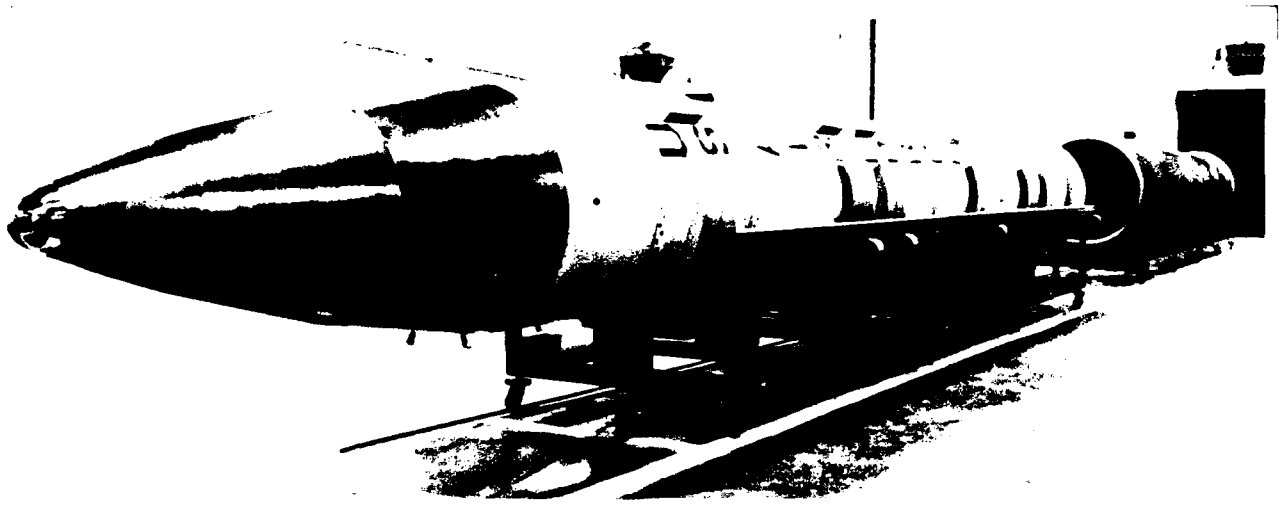
■ *Major General Casey is the commander of the Air Force Ballistic Missile Office, Norton AFB, Calif., and the program manager of the Peacekeeper weapon system.*

■ *Captain Williams is the executive officer to the vice commander of the Air Force Ballistic Missile Office, Norton AFB, Calif.*



Key to Success

Evolutionary Acquisition of U.S. Army Tactical C³I Systems

Lieutenant Colonel Robert W. Zawilski, USA

In this paper, I have the following objectives:
—To consider the U.S. Army Tactical C³I Army Command and Control System (ACCS) Architecture as a total system
—To identify the need for evolutionary acquisition of the ACCS
—To identify basic concepts for ACCS evolution
—To identify required actions for transition to evolutionary acquisition
—To highlight the need for a test bed as an essential component of evolutionary acquisition.

The Conceptual ACCS Architecture

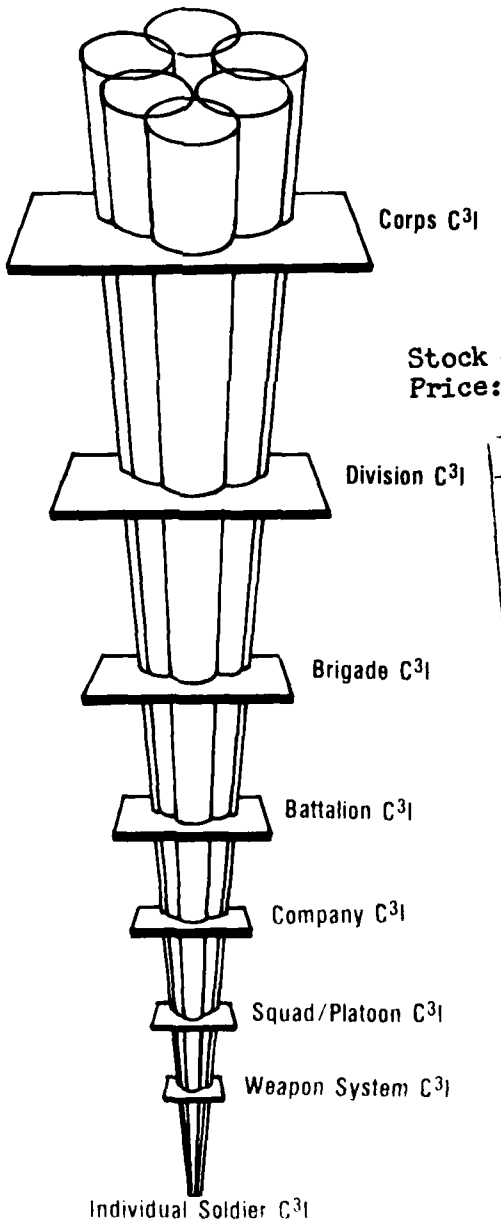
All Army tactical C³I can be aggregated into five functional areas;

—Fire Support
—Intelligence
—Combat Service Support
—Maneuver
—Air Defense.

These functional areas comprise five parallel, vertical stovepipes throughout all levels of command. The relative weight and formality of each stovepipe varies by level of command. Figure 1 offers a simplistic graphical depiction of these functional area stovepipes.

Each functional area serves as an interface into other functional areas and with adjacent or supporting functional areas of other services or nations; e.g., Fire Support integrates subordinate automated field artillery systems and interfaces with Air Force, Naval air and gunfire and all supporting offense electronic warfare systems. The interfaces with other services, nations and subordinate systems are not portrayed in Figure 1 for simplicity.

Figure 1. Tactical C³I Structure



Areas of overlap exist among the functional stovepipes because of growing capabilities within the functional areas and existing basic dependencies, such as with logistics.

At each level of command, again with formalization driven by level of command, one integrating function cuts across all functional areas; this is the force level C³I, portrayed in Figure 1 as a plane. Each functional area acts as an interface and buffer for the force level C³I. Force level C³I pulls together a common perception of the current status and future capabilities. It is a summarizing capability and a means to access specific details through its own functional areas, as well as vertical and horizontal interfaces. The force level C³I will be considered as a functional area for the remainder of this paper.

The vital importance of, and dependence on, communications to support this architecture is recognized but will not be addressed explicitly. This area is receiving appropriate intensive interest. However, too often the magnitude of communication problems results in an implicit assignment of responsibility for the entire C³I system to communicators.

Finally, the C³I system is a weapon system, perhaps the most potent. As such, it can be managed as a weapons system.

Background—Evolutionary Acquisition

Retired Brigadier General Edward Hirsch, USA, now a professor of systems acquisition education at DSMC, examined the application of evolutionary acquisition to the Strategic Defense Initiative in his September '85 *Signal Magazine* article, "Evolutionary Acquisition of Command and Control Systems." Although initially focused on SDI, the article addresses evolutionary acquisition of all tactical C³I systems. The circumstances he describes for SDI—"Neither the user nor the developer can state now with certainty and engineering specificity what one needs and the other can produce. Yet this will not prevent progress down the development path"—are true in large part for the ACCS.

Brigadier General Hirsch described the essence of evolutionary acquisition—"EA is an adaptive and incremental strategy specifically developed for C²systems acquisition." It requires:

—General functional description of the total overall capability desired
—Short requirements statement
—Flexible architecture permitting accomplishment of evolutionary change with minimum redesign
—Plan for evolution that leads toward the desired capability
—Early fielding of an initial basic (core) operational capability
—Subsequent increments of capability defined, funded, developed, and fielded
—Provisions for utilizing continuous user, developer, and tester feedback.

Figure 2, from Brigadier General Hirsch's article, portrays evolutionary acquisition as an incremental development of the total system starting with an initial core within the total architecture and building in increments toward the total system.

He points out that evolutionary acquisition is in consonance with existing DOD acquisition guidance and is, in fact, encouraged: Specifically, DODI 5000.2., "Major System Acquisition Procedures," March 8, 1983, identifies 39 acquisition management and system design principles and states that "the following principles shall be considered in planning major system acquisitions"; included is "Evolutionary Development and Acquisition of Command and Control Systems." This is from Defense Acquisition Circular 76-43, "Acquisition Management and System Design Principles," Feb. 28, 1983, which provides a discussion of evolutionary acquisition and other acquisition management principles.

Nature of Problem—Current Status of Tactical C³I Automation

The current tactical C³I system can be characterized best as a manual system with, at most, automated assistance for technical functions within only a few functional areas. All interfaces among functional areas are manual.

At the onset, you must recognize that two separate forces are at work in automating tactical C³I. The first is the formal ACCS effort; the second is a field user driven effort to provide automated assistance to their force. The formal ACCS effort works to provide a product through the traditional DOD materiel acquisition model. The field users perceive an urgent requirement, yet lack the resources to respond; therefore, they acquire support and assistance through any feasible, available outlet. The ACCS effort has focused on the vertical functional areas, while the field users focus on the force-level integration.

Field User Systems

The field users orient almost exclusively on commercial off-the-shelf hardware and, to a great extent, software. Custom application programs are used when resources are available.

These systems are evolutionary to the extent that many change their entire characters and structures in a year's time. These changes are based on experience, desires of the commander, and availability of resources.

Relatively low-cost and overall Army-wide visibility are hallmarks of these systems. Likewise, none have been subjected to the programmatic scrutiny of cost/benefit analysis, formal testing, or had to justify total effort in formal budget reviews.

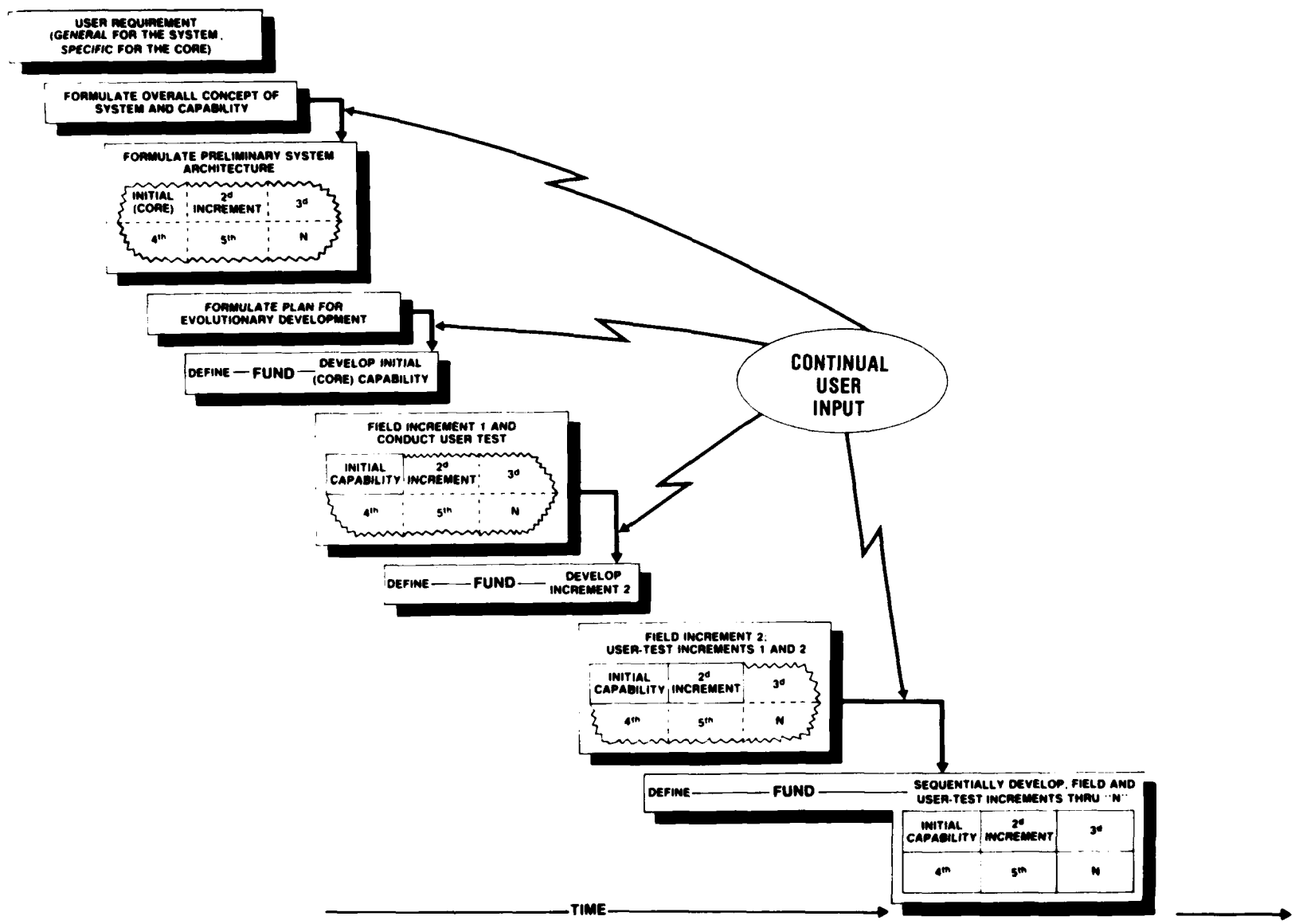
While none of the systems attempt to automate more than a small piece of the total ACCS architecture, almost everyone has taken a holistic-system viewpoint at their particular force levels. This is, in large part, because tactical forces recognize the essential requirement to operate as a combined arms team; they are free of functional-area budget bounds.

Almost every system has a garrison utility either designed in, or evolved through necessity. That is, the systems can be used in a garrison office environment and have the necessary applications software to support word processing, spread sheets, etc., to assist with peacetime requirements. This has a tremendous positive training impact in retaining system familiarity.

■ *Lieutenant Colonel Zawilski is the director, Corps and Army Operations for the Center for Land Warfare at the U.S. Army War College. He is a graduate of PMC 85-2.*

■ *This was a Defense Systems Management College research paper by Lieutenant Colonel Zawilski, PMC 85-2.*

Figure 2. EA: Incrementally Define, Fund, Develop, Field and User-Test the Operational Capability to Satisfy the Evolving Requirement



These systems are not without problems:

—Fragile nature of the hardware
—Lack of wartime support for hardware and software
—User specific to the point that few could be fielded Army wide
—Little interoperability with other systems
—Based on local doctrinal procedures
—No peacetime or wartime training base.

ACCS Programs

These programs generally reflect the formal materiel acquisition structure, recognizing that each individual acquisition strategy has unique characteristics.

Most programs are oriented on fielding an objective system for a specific timeframe.

The specific requirements are developed within the TRADOC structure. This and the preceding fact lead to a fundamental problem of trying to specify the unknown in terms of architecture and procedures. This situation leads to overlaying requirements on the current organization—as if they were just new radios. Once this occurs, you are put in the functional areas' force-structure sandboxes from which you cannot step back to view the total system.

Each functional area is in differing states of acquisition and automation maturity.

The traditional acquisition structure requires cost/benefit analysis. The value of C³I is difficult to quantify with today's analysis tools, and the focus on wartime utility overlooks peacetime garrison utility; thus, the ACCS system generally lacks garrison utility.

The length of the traditional acquisition process leads to a situation where the hardware and software technologies turn at a much faster rate than the program. Thus, we field obsolete technology which has a profound effect on the total support base.

There is a strong tendency to accommodate or work around the functional area interfaces by providing terminals to the other functional areas. This proliferation of different hardware and software will have a tremendous impact on CP structures, sustainment training, communications nets, and maintenance of the total system.

Why Evolutionary Acquisition Is Appropriate

There are many aspects of the tactical C³I automation effort that argue for evolutionary acquisition. Hardware or the physical manifestation of the system is a justification as discussed above. However, it is a weak justification and certainly secondary to other more pressing rationales. These rationales are listed below and will be discussed in the following paragraphs.

—Lack of a fully adequate procedural model
—Lack of specifically detailed interfunctional area interfaces
—Uncertainty about the structural impact of automation
—Difficulties in producing the software assuming the previous deficiencies are overcome.

Procedural Models

Development of an objective system requires a valid, detailed description of what we need to accomplish, and how we do it. This level of detail does not normally exist today save for immediately after a very focused training exercise (FTX). However, even this is colored by constraints of the FTX and still reflects the additional constraints of the manual world. Available technology limits the techniques employed in accomplishing the basic actions required by the functional and procedural structure. Because this has been true throughout history, some current doctrine and specific manual procedures are not good models for C³I automation for the following reasons:

—Evolved in manual "stovepipe" world without need for rigorous detail required for total-system integration

—Were always a guideline or school solution to be personalized and innovated upon

—Reflected C³I technology and constraints of the time (e.g., manual effort supported by acetate and grease pencils)

—Deconflicted functional area overlap through local adoptions and adjustments.

Interfunctional Area Procedural Interfaces

The interdependency and increasing functional area overlaps present, perhaps, the most serious obstacle to automating tactical C³I. The manual world adjusts to this through local and modifications and procedures based, in large part, on the personalities involved. The personalities of the commander and staff officers smooth out the inconsistencies and disjoints of published doctrine and procedures.

Doctrine is in the eye of the beholder or, more pragmatically, the perception of the senior man present. Most of today's published doctrine has been well thought out and articulated in terms of today's threat and force capability, but normally only within a functional area. The broader force-level doctrine is just that, broader in scope and less specific.

This all manifests when a functional area begins to look at automation. As increasingly detailed levels of specificity are codified, implicit assumptions become apparent. When coordination is attempted among functional areas, differing responses result depending on the automation maturity of the other functional area.

To the functional area that has not worked the automation problem, it can't understand the concern and, most likely, does not have the detail to answer the question in any other way than the manual world—personal opinion.

To the functional area that has worked the problem to a similar level of automation detail, the most likely response would be to defend and protect its assumptions; this, however, is academic because each functional area is at a differing level of automation maturity.

Because in most cases neither have been forced to actually interface tactically with our systems, we can use similar words with generally differently perceived meanings to work around the problem. Again, we have defaulted to personalities to smooth out the inconsistencies. To date, we have no vehicle to expose our evolving procedures to the harsh light of reality during requirements development.

Results of all this have not been manifested in terms of fielded functional area systems that talk past each other procedurally. We have not fielded the systems.

Structural Impact of Automation

Commercial organizations that have integrated automation have experienced major impacts on their overall structures. One corporation's experience, typical of most, resulted in a streamlining of information flow and elimination of layers of bureaucracy coupled with a sharper focus on the corporation's goals and objectives. The actual automation was preceded by a thorough scrub of its goals and how automation could be used to achieve them in a better way. In contrast, the fielding of TACFIRE, the first element of ACCS fielded, resulted in an increase in personnel because it was overlayed on the current force structure. The discussions concerning the structural impacts of TACFIRE have occurred only after fielding. The same appears to be true for other developing functional areas.

We, as an Army, are reluctant to give up force structure capability until it has been well proved through experience that it is obsolete and no longer of value. Thus, to believe that we can arrive at an appropriate match of force structure, equipment, and procedures without a careful incremental evolution is without basis.

Software Production Difficulties

Assuming the preceding are not problems, what is the remaining risk associated with producing the software? Figure 3 prioritizes the complexity—thus risk—of a software project based on types of programs, component types and other multipliers of complexity. Examining the ACCS in light of these, you find that all functional areas are an application-type program with many interface components; the system is mission critical by definition; we generally employ parallel hardware development; and we have a high propensity for inducing change. Thus, each functional area, by itself, is a high-risk project. When you aggregate the entire ACCS, the risk is at least additive, if not multiplicative.

These are the primary problems that argue for evolutionary development. Hardware compatibility among functional areas, and communications to support all this, have not been explicitly addressed; however, they are nontrivial problems confronting the traditional acquisition model for C³I automation.

Conceptual Direction for ACCS Evolution

The ACCS architecture is, in execution, an extremely complex system that has our Army's collective experience as its basis. The tactical C³I system is an art and science; perhaps more art than science. Because of these factors, concept and execution simplicity are essential.

The functional area structure is necessary and sufficient. A differing structure, regardless of its accuracy, would not be relevant to our collective experience. Likewise, consideration of anything less than the total structure would result in an unbalanced solution. This is not to say that the internal procedures or external interfaces are sacrosanct. On the contrary, they need to be looked at again in light of our overall goals and the possibilities offered by automation.

Automation of tactical C³I is, in reality, automated assistance. An automated decision-making mode is entered into only by conscious choice, and then bounded in time, focus, and resources.

Degradation/reconstitution links, thresholds, and paths must be defined from a total-system perspective for hardware, software and communications to ensure a useful system in the reality of battlefield degradation. See my September-October '85 *Field Artillery Journal* article, "A Redleg Potpourri," for further discussion of degradation/reconstitution concepts. An important degradation/reconstitution issue is how much and what type of manual backup should we retain in the C³I system after it is automated.

A common instructional set architecture must be the linking pin between iterations of the system hardware and software to allow interchangeability.

Procedures (Software)

As the total ACCS can be divided into five functional areas, so each of the functional areas can be divided into common-type procedural areas. For example, the fire-support functional area has been further sub-defined into five procedural areas. These are listed below to contrast the potential applications within other functional areas.

—Fire Support Coordination (interface between functional areas and other components of the ACCS)

—Target Generation and Processing (internal intelligence function and external ACCS intelligence interface)

—Tactical Fire Direction (internal tactical operations of functional area)

—Technical Fire Direction (internal technical activities within functional area)

—Support/Sustainment (internal logistics functions and interface into ACCS logistics areas).

These procedural areas have potential areas of commonality either in their architecture or in actual applications programs across all functional areas. The point is that we can greatly simplify our task by using a common internal functional area architecture. This architecture would share many common applications programs with only slight user modification during setup (initialization). For applications programs that are functional-area unique, a common architecture would provide a well-defined structure to fit within. This has potential savings to ease the real burden of initial system requirements specifications, software development and interoperability, O&S maintenance, and training.

Because C³I is heavily an art, the system's ability to adapt to the situation and personalities is essential at

Figure 3. Software Production Complexity

Program Type	Component Type
Application	Interface
Simulation	Logic
Computation	Computation
Botch	Data Call

Multipliers:

Embedded or Mission Critical
Parallel Hardware Development
System Life/Change Potential

each level of command. Failing to accommodate this will result in a hindrance rather than an assist. This can be accommodated by including detailed set-up or initialization criteria in application programs; and accommodating unforeseen and very-real peacetime requirements by including off-the-shelf applications programs like spreadsheets, word processing, and graphics. The last mentioned will greatly improve the garrison utility of the system, improving garrison operations and obtaining "free" system training benefits.

Decision Types

Recognize that decisions within our tactical C³I system are of two types; tactical and technical, as defined below:

—Technical decisions are those for which fairly well-defined algorithms exist and the need for human risk assessment is relatively low; e.g., computation of a ballistic trajectory

—Tactical decisions are those for which the algorithms are loosely defined, the range of variables currently precludes full automation (not considering artificial intelligence), and the risk is such that a human assessment is desirable before execution; e.g., prioritizing objectives and associated resources.

The application of automation historically focused on technical-decision assistance and has begun to envolve or encroach on tactical decisions. Expert systems promise a capability to convert tactical decisions into a technical-type decision, thus decreasing the universe of decisions requiring human involvement during execution. We need to identify now the type decisions we wish to retain for human decision-making, rather than let this be a result of technological evolution.

Hardware

Commonality of hardware is essential for material acquisition, system integration, ease of training, wartime reconstitution, and total life-cycle maintenance. Specifically, common terminals are vital to a workable system. The commonality of the terminals should be modeled after the ubiquity of the TA 312 field phone and the manual typewriter. See my December '81 *Military Review* article, "Computers: An Aid to Command and Control," for further discussion of common terminals.

The manpower, CP space constraints, training, and supporting communications systems preclude exchange of terminals among functional areas to permit interface between functional areas; rather, the existing functional area terminals must permit access to the other functional areas.

Off-the-shelf systems should be used whenever practicable to permit fielding the latest technology as soon as feasible, and at the lowest acquisition cost.

Recommendation—Transition to Evolutionary Acquisition

First, recognize the problem; that automation of tactical C³I represents a major inflection point in our evolution as an Army. All other problems are symptomatic of this over-arching problem. We must recognize that automation requires a critical look at our doctrine and organization based on our collective goals and functions. We must recognize that results of this profound change elude prediction. We cannot state our objective system with the clarity required to put the traditional acquisition process in motion.

Evolutionary acquisition is an essential strategy in carrying us through the turbulence. To do this, it must also serve to accommodate the currently disparate approaches of field users and the ACCS program.

Management

For evolutionary acquisition to work, it must operate effectively within the current management structure. The existing acquisition structure has the inherent flexibility to accommodate this effort. The problem area is shown in Figure 2 as "Continual User Input." This is a problem for a number of reasons.

—TRADOC has traditionally represented the user to provide one voice to the development community; yet, we see the field becoming increasingly involved in developing its own systems.

—Each field user optimizes to his current situation and has a short time horizon.

—In the current structure, only the field has the hands-on perspective.

—The field is readiness oriented and should not be an initial testing ground for evolving incremental changes.

A solution is to create or expand the role of a current testbed to serve as the linking pin between the development and the user communities. Hardware testbeds currently exist; the most notable is the Army Development and Employment Agency (ADEA) testbed, Ft. Lewis, Wash., currently focused on hardware and communications. No testbed exists for procedures. The ADEA relationship (it being a class II activity of DA DCSOPS) with CECOM and TRADOC, presents a management structure to build on. A way to do this is to bring together formally TRADOC functional area representatives stationed and working at ADEA but assigned to their respective schools to form the nucleus of a procedural testbed laboratory.

The mission of this total testbed (hardware/communications/software procedures) should be to validate and refine the total system architecture (hardware/communications/software procedures) for the baseline system and each subsequent iteration before Army-wide fielding; also, to serve as a ready resource to troubleshoot problems with the currently fielded version. This testbed would assume the "Continual User Input" node in Figure 2 and serve to filter, collate, and assess the various field-user inputs in the context of the total-system architecture.

Required Actions

—Develop attributes of the Army 21 C³I system by assessing the impact and potential of automation: What are future CPs? What is the relative role of the computer vis a vis humans?

—Reassess current doctrine, procedures, and organizations in light of automation's potential to assist in meeting our goals.

—Identify a common architecture for internal functional areas, as discussed above, to simplify the structure and management.

—Select a common instructional set architecture to facilitate hardware/interoperability/transportability.

—Form and empower a total-system testbed as discussed above.

(See Acquisition, page 31)

DSMC PROFESSIONAL OPPORTUNITY

WEAPON SYSTEM ACQUISITION EXPERIENCE AND ABILITY TO TEACH AT THE PROFESSIONAL LEVEL

May qualify you for a challenging assignment as

PROFESSOR OF FINANCIAL MANAGEMENT

Middle managers from the Army, Navy, Air Force, Civil Service and private industry attend courses at the Defense Systems Management College to improve their effectiveness in weapon system acquisition. As a professor at the College, you'll teach, do research and consult within the Department of Defense (DOD) in your area of expertise.

Salary range for these GS-14 excepted Civil Service positions is $44,430 to $57,759. Teaching ability and at least 5 years experience in weapon system acquisition is required. Advanced degree(s) are desired. This is an excellent opportunity to make a valuable contribution to the efficiency of military systems acquisition at all levels. Candidates will be considered for either of the following two positions.

FINANCIAL MANAGEMENT — CORPORATE

Requires expertise in corporate financial management and accounting, gained through experience in a key financial management position with a DOD contractor. Supervisory experience is desired.

FINANCIAL MANAGEMENT — GOVERNMENT

Must have a thorough knowledge of budget formulation and execution and the Planning, Programming and Budgeting System as used in the DOD. Desire experience in weapon system acquisition program offices, service headquarters, and/or OSD.

Interested persons should send a resume or Standard Form 171 to:

MDW Civilian Personnel Directorate
Hoffman Civilian Personnel Office
ATTN: ANCIV-HPL
200 Stovall Street
Alexandria, Virginia 22332

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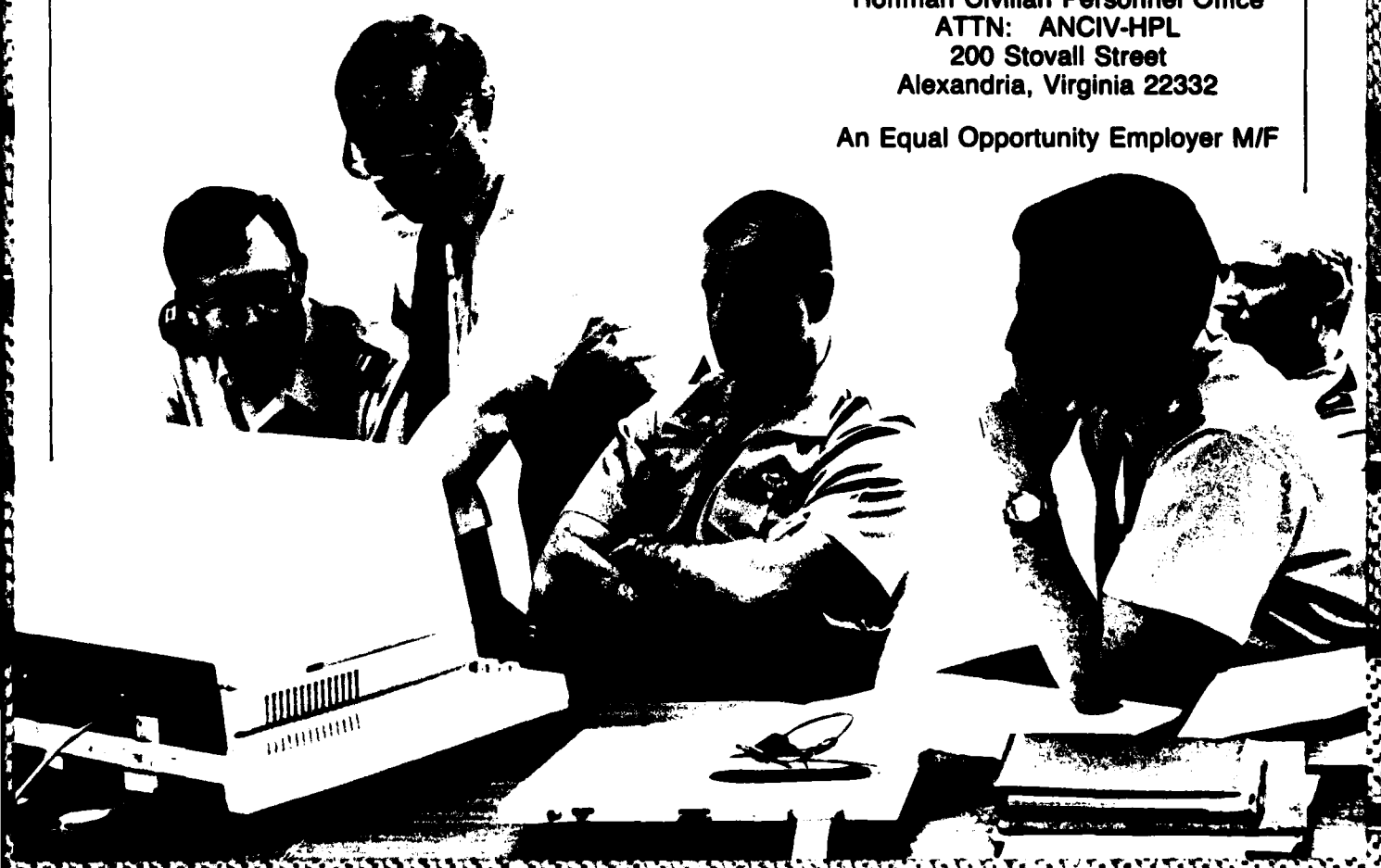


Training with Industry

Major Darcey Tatum, USA

The place was called Crystal City but the enigma of the name was painfully obvious as the negotiation team entered a small room with no windows, gray walls, and metal tables. The contractor's negotiator started to sit but was directed by the host: "Don't sit there; over there!" The sparring that began continued for 3 days as each party sought to cajole or convince the other to alter his position. Finally, strategies were played out, agreement was reached, and handshakes were exchanged. The United States Marine Corps purchased a Joint Tactical Integrated Data System (JTIDS) capability for its new Tactical Air Operations Center.

Defense system acquisition is a team effort between the government and contractor. However, as negotiation clearly shows, cooperation does not mean exposure. Each side usually has sensitive information it keeps hidden.

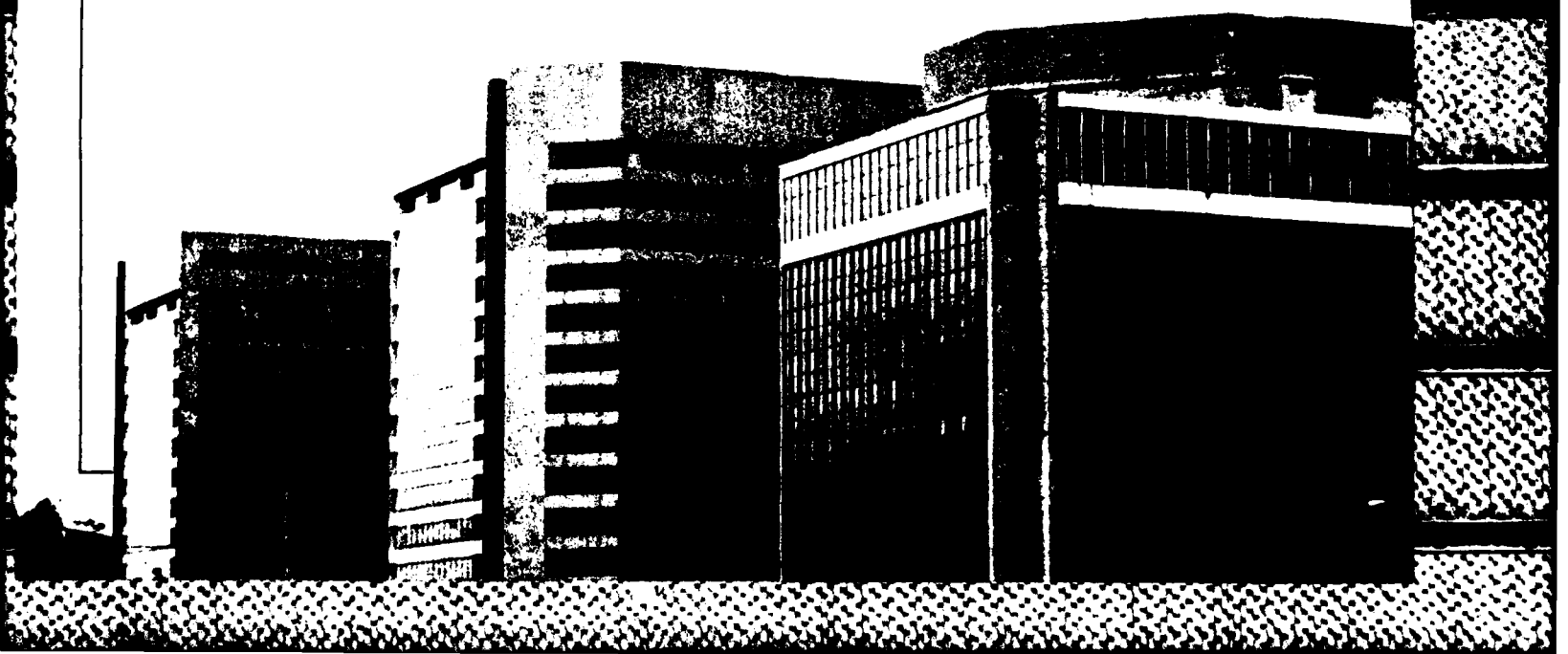
Fostering Understanding

To foster understanding, many of America's best defense contractors have joined with the Army to offer acquisition officers a unique assignment, *training with industry* (TWI). What follows should give you an understanding of the program.

The JTIDS negotiation, not unusual in most respects, had one atypical aspect—an observer from the U.S. Army sat on the contractor's side of the table.

I was the observer participating in the training with industry program at Litton Industries' Data Systems Division. The negotiation culminated a project I had started 4 months earlier. As part of the contractor's proposal preparation team, I reviewed the statement of work and request for proposal. I assisted in organizing the team, analyzed department inputs, sat on proposal "murder boards," and developed supporting technical documents including a draft work breakdown structure and program network.

The place was called Crystal City, but the enigma of the name was painfully obvious as the negotiation team entered a small room with no windows, gray walls, and metal tables.



Learning It All

I worked with Stan Gewant, who sought to teach me *everything* he had learned in 30 years of dealing with government programs. He encouraged me to question even simple departmental inputs for misunderstandings, errors, and "gold plating." Seeking justifications and culling fat educated me and developed a more realistic proposal. Conversely, Stan asked me to research government requirements; even though he was aware of requirements, his technique forced me to study problems the government typically generates. In one case, to explain a certain requirement, I confronted the problem of MIL-STD[1] tiering head-on. When I found documents were not readily available, I became a strong proponent for the current DOD streamlining initiatives.

Data Systems Division considered me one of its employees. During proposal preparation, I attended strategy meetings, pricing discussions, and internal audits. I began work assignments in other departments and found my sponsors to be forthright. We discussed problems openly with little self-serving defensiveness, no topic off-limits, and questions answered thoroughly.

I wondered if such candor was an attribute peculiar to Data Systems; however, officers completing TWI assignments at Sikorsky Aircraft and Martin Marietta said those organizations were candid. We concluded TWI companies generally recognize the value of experiential learning and encourage employees to deal with training officers in an open manner. Companies operating "close to the vest" don't volunteer for the TWI program.

Why?

A report published by the Logistics Management Institute, "Introduction to Military Program Management,"[2] identified some reasons why training with industry is needed.

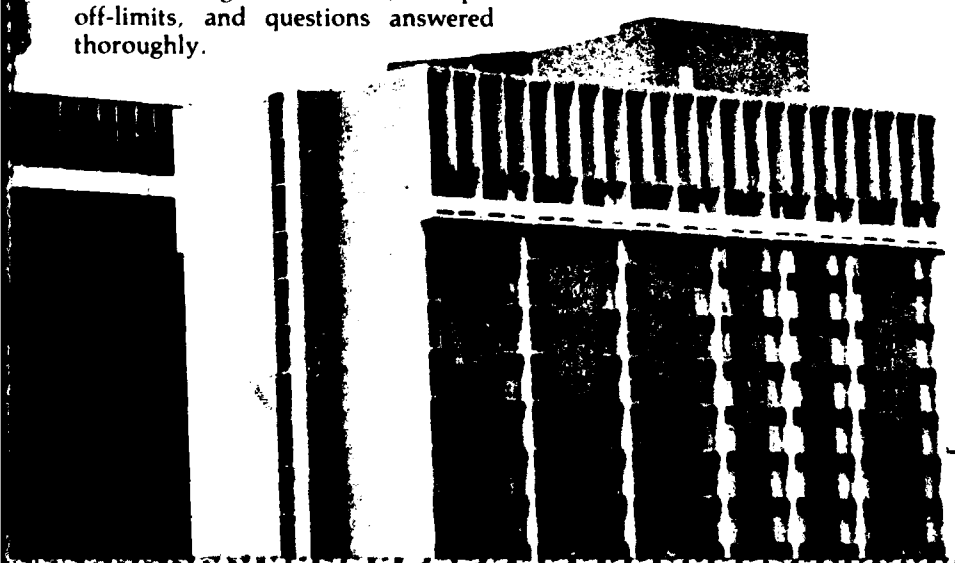
> Industry goes to great lengths to learn everything it can about its customer—the government. The government should do no less in learning about industry.
>
> Insight into many program management problems can best be obtained through actual experience.
>
> The program manager's challenge is to satisfy the needs of the user *and* motivate the contractor. Accomplishing that challenge often depends on his ability to understand the user's and contractor's problems, constraints, and capabilities.

Most Army program managers and other acquisition officers rotate into and out of user assignments. Having lived in the user environment, we are usually empathetic to the user's needs and understand the impact of those needs on our mission.

Know the Contractor

Few acquisition officers have faced a contractor's problems, or lived in that environment. Some assignments, other than TWI, involve working with industry but virtually all involve the risk of personal failure, including barriers to the free flow of information existing when people sit on opposite sides of a table; as a result, the incumbent's view of a contractor's problems is usually tainted by the situation and personal prejudices. Training with industry is based on academic objectivity and is the only opportunity acquisition officers have to know a contractor's problems and to study him without bias.

One lesson learned in a TWI assignment is that many officers have an *Economics 101* view of contractor motives. I understood the implications when a Litton vice president told me one corporate objective was to return a certain level of profit. I wasn't sure what he meant when he qualified the statement with " ...but we don't seek to do it [improve profit] at any cost." I thought he might be talking about ethics, but he wasn't. He explained that short-run issues like cashflow, workforce stability, and customer satisfac-



tion can be more compelling motivators than is enhancing profit. Later he proved it by spending several million dollars of corporate funds to satisfy the customer, rather than creating a situation that would have compromised the company's reputation for being committed to developing a quality system. While there is little doubt the company will recover the money down the line, the point is that the short-term issue was the driving motivator not improving this year's profit picture. Acquisition officers, particularly program managers, who understand short-term motivators can use them for the mutual benefit of the government and contractor.

A 1-Year Assignment

When training with industry, the officer is an active participant rather than a passive observer. The assignment is for 1 year. Each officer works initially with the company sponsor to develop a training program suiting the needs of both. Therefore, no two programs are alike but most include orientations, job assignments with various departments, travel, and off-duty study.

The corporate orientation is usually accomplished early in the schedule. This instruction may be conducted with a group of new employees, or in one-on-one meetings with executives and senior managers. It usually includes the drudgery of studying company policy manuals.

Job rotation, the core of most TWI programs, is designed to provide the officer a broad-based learning experience. In some cases, the officer prefers to specialize in one area—manufacturing for example. Most companies are quick to accommodate such requests. Whether rotating or specializing, the student is normally paired with a company employee or team; the student's job is to cultivate a working relationship, facilitating the exchange of information.

Most large defense contractors have major activities located away from the primary TWI training site. I was assigned to Data Systems headquarters in California but its production facility was in Colorado. To get a full picture of the division's activities and to study assembly techniques, my training program included time at the production facility. Since travel is often desirable in a TWI assignment, each officer is provided blanket travel orders and a limited travel allowance ($1,500 in 1985).

Off-Duty Studies

Officers are expected to pursue off-duty studies during training with industry assignments. Most undertake graduate school, professional development correspondence courses, or company-sponsored training. Some officers have satisfied the requirement in unique ways like extensive reading of current management literature, weight reduction and physical endurance training, or learning how to use state-of-the-art CAD/CAM[3] equipment.

The TWI program has grown from a handful of participants in 1972 to 120 currently. Selection by the Military Personnel Center is open to captains, majors, and lieutenant colonels in the specialties shown in Chart A.

The competitive selection is based on an individual's military and academic records; the proponent headquarters then matches the selectee to a specific company, which concurs with the nomination.

Benefits of TWI to the Army are as real as they are difficult to quantify. To derive those benefits, the Army

Chart A. Specialties That Utilize Training With Industry

Specialty	Number of TWI slots 1986/87	Proponent Headquarters
Procurement and Production (SC97)	51	Army Materiel Command
Research and Development (SC51)	7	AMC
Aviation Logistics (SC71)	3	Deputy CofS Logistics
Ordnance (SC91, 73, 75)	5	DCSLOG
Quartermaster (SC92, 81, 82 and SI 041)	10	DCSLOG
Transportation (SC95 and SI 500A)	15	DCSLOG
Communications-Electronics (SC25, 27, 72)	17	Signal Center Ft. Gordon
Public Affairs (SC46)	7	Chief of Public Affairs
ORSA (SC49)	3	Deputy CofS Personnel
Comptroller (SC)	1	Comptroller of the Army
Military Police (SC31)	1	MP School Ft. McClellan

■ *Major Tatum is a staff officer in the office of the Army assistant chief of staff for information management. He spent the 1984-85 school year participating in the Training With Industry Program at Litton Industries' data systems division, Van Nuys, Calif. He is a DSMC PMC 85-2 graduate.*

must assign participants to jobs that exploit the experience gained. Therefore an individual is simultaneously matched with a company and programmed into a 3-year utilization tour. Follow-on assignments are usually highly sought after. In research and development TWI assignments, follow-on service is often with program offices and generally supports professional development as a materiel acquisition management (6T) officer.

How to Apply

Officers wishing to apply will need a resume and DA Form 1618R, "Training of Military Personnel at Civilian Institutions." Specifics are contained in Army Regulation 621-108, May 1985. For more information about TWI, call your career development officer, Military Personnel Center, or telephone Ms. Helen Rhone, (202) 325-7800, MILPERCEN Education Branch. The AUTOVON prefix is 221.

Lieutenant Colonel Jack Conway summarizing his TWI experience, said in his final report: "My training provided an outstanding opportunity to learn industry processes, problems, strengths, weaknesses and motivators. TWI exposed me to a myriad of opportunities not available elsewhere in the Army. I did not learn the secrets of the company; I am, however, a much better informed customer who can perform my future duties in Army materiel acquisition more effectively."

Are You in the Air Force?

The Air Force has a program similar to TWI called *education with industry* (EWI), which was started in 1947 and jointly sponsored by the Air Force Institute of Technology (AFIT), and host companies. Each year 75-80 companies participate. In 1985-86, there are 144 officers and 7 Air Force civilians enrolled in EWI training in 30 areas. Those pertaining to program management include aircraft maintenance management, cost analysis system program financial management, financial management and accounting and auditing, management engineering, procurement production, computer performance evaluation and management, quality assurance (DCAS DCA), logistics management, research management, and supply management. The EWI enhances employee professional development and cross-trains personnel into new career fields. Participants are usually in the ranks of captain through lieutenant colonel with less than 14 years TAFCSD. Specific requirements and application procedures are in Chapter 4, *Air Force Manual* 50-5. For more information, call Major Jim Janulis, (800) 543-3577, Wright-Patterson AFB, Ohio.■

Footnotes

1. MIL-STD—Military Standard. Tiering refers to the situation where a MIL-STD specified in a contractural document (e.g., a statement of work) imposes by reference the provisions of another MIL-STD. If 30 MIL-STDs are specified in a statement of work it is common to find that another 150 are invoked by reference.

2. *Introduction to Military Program Management*, Logistics Management Institute, 1971, Chapter III.

3. CAD CAM, Computer Aided Design Computer Aided Manufacturing.

EDUCATION

On the Road with the Production Competition Course

Sandy Rittenhouse

This summer the Defense Systems Management College (DSMC) will add a new course in systems acquisition education. With current emphasis on competition throughout the Department of Defense, DSMC and the military services competition advocates will sponsor a 2-day course on production competition to be taught onsite at Army, Navy, and Air Force buying commands. Focusing on establishing competitive production sources for multiple suppliers of equipment, the course is designed for program managers, their immediate staffs, and other key acquisition personnel who assess competition strategies—military officers in grades 03 and above and DOD civilians in GS-11 and above.

The course evolved from the DSMC publication in 1984 of a handbook, *Establishing Competitive Production Sources*, which provides program managers/buying commands with a single reference in assessing, implementing, and executing production competition. It was well-received by the acquisition community; 4,000 copies are used throughout DOD. Response to the handbook, coupled with passage in 1984 of the Competition in Contracting Act (CICA) legislating full and open competition as a rule, led DSMC to develop a course based on the handbook. From the outset, the idea was intensive training for managers because competition affects all functional areas of acquisition. To reach a large audience, DSMC and the competition advocates are taking the course on the road.

The course was developed with contract support from LDI, Inc., DSMC chairing an advisory panel comprising members from the three military services Competition Advocate Offices. Before field offerings, two prototype classes were presented to both DSMC faculty and to guests with various perspectives. Instructors with practical experience in planning and executing competitive production strategies teach the course.

The course covers the following:

—Comparison of pre- and post-CICA requirements including competition terminology and definitions

—Approaches for establishing production competition (leader-follower, licensing, and form, fit, and function) and evaluation factors for each

—Economic analysis, based on progress-curve theory, comparing benefits/costs of sole-source versus competition production strategies

—Techniques and practical examples for implementing production competition plans.

One highlight will be demonstration of and hands-on practice with a computerized competition evaluation model, which is one example of many analytical tools developed to help decision-makers do a "first-cut" on the economic feasibility of using production competition; it provides a framework to structure variables, and assumptions for evaluating production competition strategies. The model is an automated mechanism for conducting sensitivity analysis on many quantitative variables to be considered when deciding on a production approach.

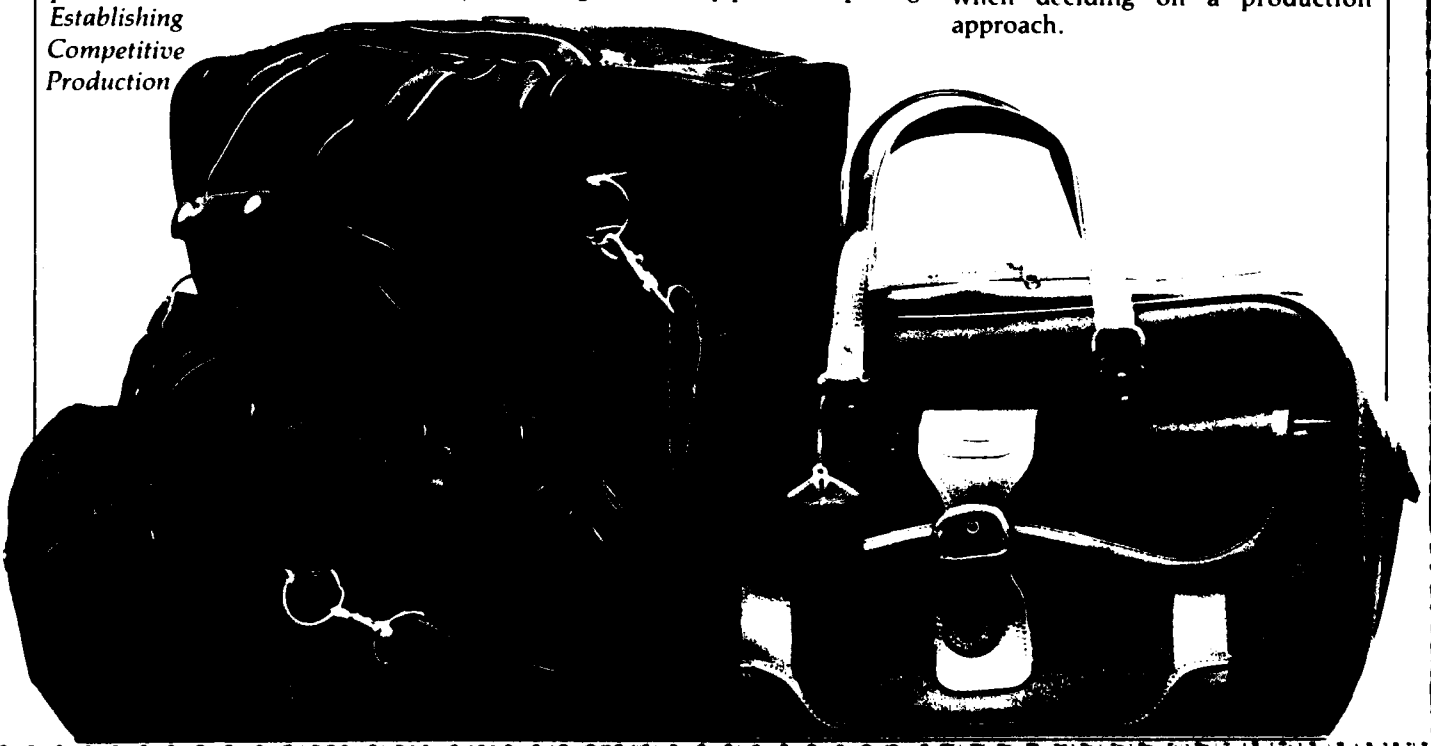


Figure 1. Production Competition Course Offerings

LOCATION	DATES
DSMC (for Army Competition Advocates)	June 12-13
DSMC (for Navy/Air Force Competition Advocates)	June 16-17
Air Force Systems Command (AFSC), Andrews AFB, Md.	June 18-19
Naval Sea Systems Command (NAVSEA), Arlington, Va.	June 24-25 and 26-27
Tank-Automotive Command (TACOM), Warren, Mich.	June 30-July 1 and July 2-3
Naval Supply Systems Command (NAVSUP), Arlington, Va.	July 9-10
Air Force Logistics Command (AFLC), WPAFB, Ohio	July 15-16
Aeronautical Systems Division (ASD), WPAFB, Ohio	July 17-18 and 21-22
Armament Munitions and Chemical Command (AMCCOM), Rock Island, Ill.	July 24-25
Space and Naval Warfare Systems Command (SPAWAR), Arlington, Va.	July 28-29
Naval Air Systems Command (NAVAIR), Arlington, Va.	July 30-31
Aviation System Command (AVSCOM) and Troop Support (TROSCOM), St. Louis, Mo.	Aug 5-6 and 7-8
Missile Command (MICOM) and Ballistics Missile Defense Systems Command (BMDSCOM), Huntsville, Ala.	Aug 11-12 and 13-14
Navy Aviation Supply Office (ASO), Philadelphia, Pa.	Aug 18-19
Communication and Electronics Command (CECOM), Ft. Monmouth, N.J.	Aug 21-22
Electronic Systems Division (ESD), Hanscom AFB, Mass.	Aug 26-29
Navy Ships Parts Control Center (SPCC), Mechanicsburg, Pa.	Sept 3-4
Naval Supply Systems Command (NAVSUP), Arlington, Va.	Sept 8-9
Armament Division (AD), Eglin AFB, Fla.	Sept 11-12
Aeronautical Systems Division (ASD), WPAFB, Ohio	Sept 16-17 and 18-19
Space Division (SD), Los Angeles, Calif.	Sept 23-26
Ballistic Missile Office (BMO), Norton, AFB, Calif.	Sept 29-30

The course ends with a case study using student teams to assess economic feasibility of competition for the case, and to develop and defend an acquisition strategy based on that decision.

To attend tne course, contact the training officer or competition advocate ottice at the appropriate command on the course offerings list (Figure 1). Classes will be limited to 30 people per offering. For further information about course content, contact Sandra Rittenhouse, Defense Systems Management College, AUTOVON 354-5783/4795.■

Government To Industry

When Lee Iacocca left Ford Motor Company Chrysler, it seemed like a natural move: a talented man taking his skills to another company in the same industry.

The " revolving door" phenomenon, in which DOD officials leave government service to work for a defense contractor, has attracted attention on Capitol Hill and in the media.

David Ream, an attorney for the DOD General Counsel, said the movement of individuals between the private sector and government service is a major strength of this country's democratic system-and of the Defense Department. He pointed to the U.S. statutes, in effect since 1979, that:

—permanently restrict former government employees, military or civilian, from serving as another person's representative to the government on an issue in which he participated "personally and substantially" while a government employee;

—place a two-year restriction from the time an employee leaves government service and the time in which he represents another person on an issue in which he had official responsibility during his last year of service;

—bar senior employees from representing anyone other than the United States before their former agency for a period of one year after leaving military service;

—prohibit retired regular military officers from selling supplies or defense materials to defense and related agencies for three years after retirement; and

—permanently restrict retired regular military officers from selling to their own former military departments.

These rules are enforced by requiring former military officers with 10 years active service at grade 0-4 and up, and former civilians at grade GS-13 and up, to report if they worked for, or served as a consultant to, a major defense contractor. This was strengthened by the Fiscal Year 1986 Defense Authorization Act.■

American Forces Information Service.

Blue Ribbon Commission On Defense Management Will Enhance Security

The Honorable William H. Taft IV

This story is adapted from remarks prepared for delivery by the deputy secretary of defense to the National Security Industrial Association the past April.

Thank you for this chance to talk about the recent report of President Reagan's Blue Ribbon Commission on defense management, and the opportunities it provides for expanding the defense management improvement effort that has been under way since Secretary Weinberger took office in 1981.

The Department of Defense welcomes this report. We view it as a new and important stimulus to continue improving our management of defense programs and policy. The report recognizes the importance of, and reinforces, many management improvement initiatives we have already adopted. It provides recommendations for significant changes in the manner in which the Congress considers defense issues. These recommendations parallel the proposals directed to the executive branch.

Mr. Taft

Bold and Measured Steps

The bold but measured steps toward a more effective and efficient management structure recommended by the Packard Commission are a fitting next step to the work we have already done to improve defense capabilities and management. I would like to place them in the context of President Reagan's and Secretary Weinberger's program to enhance America's security in this decade.

In 1981, this nation faced a most challenging task: rebuilding America's defenses and improving management within the Department of Defense. This challenge translated into four specific areas for improvement: in leadership, in funding for defense, in the acquisition process, and—finally—in the organization and decision-making procedures of the department, the executive branch, and the Congress for addressing national security issues.

While these four areas are not totally discrete, they are sequential. We could not, for example, achieve sufficient funding to enhance defense without national leadership; we could not reform our acquisition programs without money to make initial investments in more economical production methods.

Rekindles America's Patriotism

With the election of President Reagan and his appointment of Secretary Weinberger, the American people got leadership. The president's unswerving commitment to what President Dwight D. Eisenhower called the "high commission that history has thrust on" this great nation, rekindled America's patriotism. Americans responded with increased confidence in themselves and their country's ideals—committing to defend those ideals, instead of apologizing for inevitable shortcomings in achieving them.

Secretary Weinberger's leadership was crucial. He presented a clear-eyed view of the threat posed by the Soviet military build-up to world peace and freedom. He led the battle for a larger commitment of resources to defend against that threat.

The Congress responded to the leadership of President Reagan and Secretary Weinberger with the resources necessary to rebuild defense. During the past 5 years we have made great progress in reversing the second problem our defense programs suffered from during the 1970s—a lack of funds. We have renewed America's armed forces with the increased resources made available. We have turned the corner on the decade of neglect and sent a clear signal to adversaries and allies alike that we will be vigorous in defense of freedom and that we have in place programs to give us the capability required.

In the 1970s, we had so severely underfunded defense that we were unable simultaneously to support and train our personnel, purchase sufficient munitions and parts, and acquire the new hardware needed. You all know what happened: Uniformed and civil-

ian defense professionals fled their government careers; aircraft and other systems were frequently out of commission; too little funding for training and fuel meant pilots did not get to fly, and ships were kept tied up at the pier.

We have made significant progress. The Congress endorsed the president's rebuilding plan and provided the resources necessary. Improvements begun in the last years of the previous administration were expanded.

Strategic Deterrent Improving

Our strategic deterrent has been improving steadily. The B-1 bombers are now being delivered to the Strategic Air Command—that's our first new strategic bomber since the early 1960s. Seven new Trident Submarines have been deployed. The first half of the 100 Peacekeeper Missiles needed will soon be deployed. The small ICBM or Midgetman Program is proceeding on schedule. Long overdue investments in command, control and communications systems have been made.

Our conventional forces have benefited. In addition to new munitions, like the HARM Missiles that proved so successful against Soviet-built radars in the Gulf of Sidra, our Navy and Air Force now fly the world's best fighters and have more than twice as many modern missiles available to them. Our ground forces have the M-1 Tank—in an improved version—and other new, more capable systems. We have doubled our airlift capacity with the improvements to our fleet and the addition of the KC-10 and C-5B Aircraft. Front-line aircrews and soldiers train more frequently and more realistically; and Navy ships spend more time at sea. This list could go on, but the point is made: Clearly, our forces are more able today than in 1981. Larger defense budgets have made this possible.

The third area that had to be addressed was the acquisition system in the Department of Defense.

By 1981, the mistakes and miscalculations of the past had reached critical levels. Cost growth in major weapon system programs had reached 14 percent a year. An Air Force study of the acquisition process found that lack of discipline in requirements formulation and program management, underfunding of programs, and underestimates of inflation were responsible for rampant cost overruns. Weapons programs were not well disciplined; costly new requirements were tacked onto programs, and cost and schedule goals routinely fell by the wayside.

Sweeping Reform of Management

Secretary Weinberger ordered a sweeping reform of management within the department in 1981. Included was a massive audit of defense programs to root out and eliminate waste and fraud, but our effort went far beyond that.

A sweeping reform of management within DOD included a massive audit of defense programs to root out and eliminate waste and fraud.

Hundreds of initiatives were established to improve management of defense programs. A key component of the reform effort was our Acquisition Improvement Program, inaugurated in 1981 by Frank Carlucci, assistant secretary of defense. Not surprisingly, many of the elements of this program are reinforced in the report of the Packard Commission, of which Carlucci was a member. As part of our reform effort in the past 5 years, we have, among other things, increased the use of competition by 37 percent; faithfully adhered to economic production rates even in the face of substantial budget cuts; improved program management discipline with baselining and other cost-capping programs; freed program managers from non-value adding specifications and requirements through the streamlining program; expanded the use of multi-year procurement contracts; insisted on more effective joint program management; and taken steps to develop a more professional and better trained acquisition corps. Each of these actions is endorsed in the commission's report.

The results have been dramatic, and it's no wonder the commission thinks we should keep doing these things and do them more. We think so too. Weapon system cost growth has been reduced from that high of 14 percent to less than 1 percent annual growth in each of the last 2 years. The costs of many individual weapon systems have been driven down. We have replaced cost growth with cost reduction. How many times did you hear that a weapon's cost had gone down in the 1970s?

Price Tags Drop

In fiscal 1975, SSN-688 Submarines cost $463 million—that's in constant 1968 dollars. By 1980, the cost of those submarines had risen to $603 million each. Since then, we have driven the price down to $577 million in fiscal 1985. This year's buy will be $574 million, and the price next year should be lower still. In 1978, its first year of significant production, the UH-60 Blackhawk Helicopter had a flyaway cost of more than 5.5 million 1986 dollars. This year, it will cost $500,000 or 9 percent less.

Between FY82 and FY86, the average unit costs in 1986 dollars for many vital systems in high-rate production have been dramatically reduced just as we predicted they would be: the M-1 Abrams Tank is down by 4.3 percent; the Bradley Fighting Vehicle is down by 9.7 percent; the F-18 Hornet Fighter is down almost 23 percent; and the B-1 Bomber cost dropped from $181 million in 1985 to $133 million this year. The AH-64 Apache Helicopter cost went down almost 30 percent between 1984 and 1986.

While our managment improvements have contributed significantly to these price reductions, we must acknowledge the contribution of the Congress in this effort. Congressional support has been of invaluable assistance. The HARM Missiles used in the Gulf of Sidra provide an excellent example of how the Congress and DOD have worked together to produce a more effective weapon at lower cost. In this case, not only is the HARM of

today a better system than it was in 1980, but it costs only half as much as it did in 1984.

More to Do

Our management improvement initiatives have paid off. But, there is more to be done—greater efficiencies and effectiveness can still be gained by adjusting the department's management structure and organization. Better leadership, management initiatives, and more funding cannot alone give us the most effective administration of our national security programs, unless changes are made in underlying organizational structures and congressional budget procedures. The Packard Commission Report and Senate Armed Services Committee recommendations on reorganization come just when they are needed.

It is easy to see how the Packard Commission's proposals will advance the efforts we have had underway, and the changes we have made in the department in the organizational area and in management. Since 1981, our organizational changes have focused on three primary areas: first, on improving mission oversight and strengthening the role of the unified and specified commander-in-chief (CINC) in the resource allocation process. We have formally charged the military departments with implementing the CINC requirements and provided them with direct access to the planning, programming, and budgeting system (PPBS) process, as well as to the Defense Resources Board deliberations. The CINCs now have significant influence in resource allocation decisions. The commission endorses these actions and recommends more strengthening of the CINC role in department decisions.

Second, we worked to strengthen the role of the chairman of the Joint Chiefs of Staff (JCS). We increased the chairman's role in resource allocation and, with support from the Congress, strengthened his control of the JCS organization. The commission recommends more steps requiring legislation in this area, including creation of a vice chairman. We support these proposals.

Acquisition Management

In the third area, acquisition management, we made significant organization adjustments, concentrating on what could be accomplished internally without legislation. *Primary among these was the designation of an assistant secretary of defense as the focal point for acquisiton.*

The commission recommends establishment of an undersecretary position that will consolidate authority of several offices, with responsibility for acquisition currently required to report directly to Secretary Weinberger.

Top corporate management must send clear signals to employees about standards of conduct and behavior required in companies that share the public's trust for defense.

Let me outline Packard Commission recommendations that President Reagan has approved for implementation; and our perspective on them in more detail. The report's first section proposes new defense planning and budgeting processes. We are enthusiatic about implementing the commission's recommendations in this area. Especially significant are the proposals for a 2-year budget, which Secretary Weinberger has advocated for several years now, and presenting the Congress with a budget based on national strategy and operational concepts, rather than line items. These are good ideas. Getting the Congress to focus its budget review on strategic issues will be a challenge, but we will pursue it.

The commission's idea about linking appropriations to decision milestones for major systems is a good one. It would strengthen our program stability initiatives, and I am sure it would allow even greater efficiencies in industry.

Command Relationships

The next area the commission dealt with was the military organization and command relationships. We support the commission recommendation for appointment of a vice chairman of the JCS with duties defined by the chairman. The commission recommended broader authority for the CINC in resource allocation, which reflects steps we have already taken.

The third area addressed by the commission was acquisition. The creation of an undersecretary of defense for acquisition is a very good idea which, incidentally, has already gathered congressional sponsorship. In addition, the commission recommended further strengthening the acquisition focal point within each military service and streamlining reporting channels for major programs. Secretary Weinberger has directed us to initiate this effort.

We have been directed to act on commission recommendations for expansion of several acquisition initiatives already underway including competition enhancement, baselining, and multiyear procurement. Further, the commission proposed increased use of off-the-shelf equipment. This is already a major feature of our acquisition streamlining program. We will do more of it.

Enhancing the professional acquisition workforce was an important recommendation of the commission. We believe this is an especially important challenge. We have been working with other agencies to design alternative personnel management schemes to propose to the Congress.

Finally, the commission addressed aggressive enforcement of regulations regarding conflict of interest, and laws regulating contractor activities. We are active in this area; however, as the Packard Commission noted, industry will have to carry part of the weight. Codes of conduct must be designed and implemented throughout industry. Many models, I am pleased to say, already exist. Further, top corporate management must send clear signals to their employees about the standards of conduct and behavior required in companies that share the public's trust for defense.

Congressional Changes

You can see, then, that we fully support the Packard Commission's recommendations and are carrying out the presidential directive to implement them to the limits of our authority. However, President Reagan and the commission recognize that DOD is not the *only* player in defense management. If the commission's recommendations are to be fully realized, the Congress must make changes; not by enacting legislation aimed at the executive branch but by altering the way it conducts its responsibilities for national security. Among changes needed are: reduction of line item decision-making by the Congress; adoption of biennial budgets; and limitation of defense oversight to the committees properly charged with that responsibility. Most important of all, and related to these, are the changes needed to assure stability in defense policy, programs, and budgets. Let me dwell on this.

The Packard Commission makes no more important point in its report than the urgent need for stability in defense policy, programs, and budgets. Such stability is the principal objective of its recommendations in the planning and budgeting areas, and is vital to the success of many reforms proposed in the acquisition area. Whether this stability is realized depends not only on the executive branch undertaking the actions announced by the president this week, but also on the Congress. While the Congress has been supportive in recent years of efforts to maintain stability in particular programs, its record regarding the defense budget as a whole has not been encouraging.

Let us consider, for example, the congressional action to date on the fiscal 1986 budget. President Reagan's request was consistent with the congressional budget resolution adopted in October 1984. By May 1985, a new budget resolution reduced the budget by $20 billion, with larger reductions in future years. The authorizing bill passed at that level, although the House of Representatives version of that bill was prepared at a level $10 billion below the budget resolution. In November, the appropriation bill reduced the budget another $4 billion. In February 1986, the fiscal 1986 budget was reduced a further $11 billion by the application of Gramm-Rudman 5 months into the fiscal year. With the fiscal year more than half over, the Congress is still considering a multibillion dollar bill authorizing the obligation of certain of the funds in the appropriation act. While the theory of biennial budgeting recommended by the Packard Commission is loudly applauded on television talk shows, the practice of bimonthly budgeting has been quietly and steadily gaining ground on Capitol Hill. The Packard Commission objective of stability will not be realized unless this trend is reversed.

Stay the Course

Chairman Goldwater, Senator Nunn, Senator Stevens, Chairman Aspin, Congressman Nichols, Congressman Courter, and other members of the Congress should be given credit for recognizing this and other problems. They should be given support. They have called for congressional reform to coincide with the reform effort in DOD. That is essential. We must have reform in both institutions. For fiscal 87, the president has once again submitted a budget that is consistent with the congressional budget resolution of the previous year. We will see how things go.■

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Third RD&E Hotline At Belvoir

The U.S. Army Troop Support Command's Belvoir Research, Development and Engineering Center has opened a new hotline, AUTOVON 354-5120. It provides help for soldiers with questions about supply distribution equipment, water and fuel supply systems, marine craft, support equipment, electric power systems, or heaters and air conditioners.

The logistics hotline is open 24 hours every day, including week-ends, to users of the centers' logistical equipment. The callers' questions are forwarded to the center's equipment experts for follow-up; equipment experts call the person in an attempt to resolve the problem.

The center has two other hotlines assisting users with questions about combat engineer equipment (AV 354-2654), and materials, fuels and lubricants (AV 354-3576).

PHASE III

Productivity Measurement and Incentive Methodologies

David D. Acker

In October 1985, the Defense Systems Management College (DSMC) sponsored Phase III of a research project to identify and develop productivity measurement and incentive methodologies that will effectively integrate with government to contractor incentive methodologies. The military services want to improve the performance of defense system acquisition; i.e., reduce costs, increase quality, and improve design to production to delivery transitions. Contractors to the government need to improve their performances so they can be competitive, grow, and survive. Government to contractor incentive/(gain sharing) methodologies, such as the Department of Defense (DOD) Industrial Modernization Incentives Plan (IMIP), are viewed as a way to create win-win situations for both the government and defense contractors, thereby satisfying the goals of each. The primary benefits are lower costs, while maintaining or improving the quality of these systems. Examples of secondary benefits are: increased production capacity due to expanded or modernized facilities, shared savings to offset lost profits to the contractor, technological innovation that might have been prohibitively expensive otherwise, and improved productivity. There are, of course, company-specific benefits.

A program of the scope and character of incentive methodologies, such as IMIP, is complex. Many elements of the overall program must work together successfully to achieve the intended outcome.

The critical elements involved are those of measurement and evaluation. First, we (the government) cannot manage what we cannot measure; therefore, we must find a suitable way to measure productivity. Second, we cannot share benefits unless the benefits can be verified. We must be able to validate that productivity improvement has the positive impact it was projected to have. Third, the productivity measurement and evaluation system should motivate, promote, and encourage productivity improvement. Fourth, the government needs to measure and evaluate productivity so it can control the implementation of productivity improvements.

Before reviewing the Phase III efforts, let's briefly review Phases I and II efforts.

Phases I and II Efforts

In support of the Office of the Secretary of Defense (OSD), contractor productivity measurement methodology research was initiated by the Army Procurement Research Office (APRO) at Fort Lee, Va., as a Phase I effort. The APRO staff examined productivity measurement practices within industry today, and identified three models worthy of more complete investigation. The APRO research determined that DOD contractors regard productivity as an important performance criterion. Productivity ranked fifth out of seven in order of importance; profitability ranked first.

The productivity measurement practices research examined several different models and focused on three that met the requirements just stated. These were the Multifactor Productivity Measurement Model (MFPMM), the Cost-Benefit Analysis/Cost-Benefit Tracking System Model (CBA/T), and the IMIP shared-savings model.

—The MFPMM is a price-weighted, accounting-based model used to meet the productivity measurement needs of business managers. The MFPMM identifies profit impacts due to both productivity changes and price recovery; i.e., price/cost changes. Productivity changes are identified by comparing the current accounting period with a previous (or base) period.

—The CBA/T system model is a comprehensive approach to measuring and tracking changes in manufacturing cost and productivity. The CBA/T differs from conventional cost-accounting in that most costs are treated as direct costs; i.e., manufacturing cost = direct labor + direct material + machines and automation + operational support + engineering + plant and facilities + information system + inventory + general and administrative top-down factory analysis proposed by Price Waterhouse.

The IMIP shared-savings model is a generalized approach to productivity measurement which requires the identification of productivity enhancing investments made by the contractors and the cost savings resulting from the acquisition. The savings are shared by the contractor and the DOD. One model for analyzing shared-savings investments is the discounted cash flow shared-savings model proposed by the Logistics Management Institute.

The Phase II research effort, which was conducted under direction of the Air Force Business Research Management Center (AFBRMC), Wright-Patterson Air Force Base, investigated productivity measurement theory and developed a taxonomy of product measurement theories and techniques.

The results of both research projects were briefed to the Defense Acquisition Research Elements (DARE) Working Group, as well as the OSD Industrial Productivity Directorate

headed by Dr. Richard A. Stimson, Office of the Assistant Secretary of Defense (Acquisition and Logistics).

In the fall of 1984, the DSMC, as a participant in the multiphased research effort, assumed responsibility for the final three phases. Personnel from APRO, AFBRMC, the Navy, and the sponsoring office in OSD are supporting me (the contracting officer's representative (COR) at DSMC) by serving on a review team for the work being accomplished in Phases III, IV, and V.

Phase III Effort

The purpose of the Phase III effort was to investigate selected productivity measurement and evaluation models in terms of their ability to satisfy the goals of measurement identified earlier. Based on the findings in Phases I and II, three models and one methodology were investigated by a "paper test." The three models were: (1) the Multifactor Productivity Measurement Model (MFPMM), (2) the Price Waterhouse Cost Definition Methodology (CDEF), and (3) the Discounted Cash Flow/Shared Savings Model (DCF/SSA). The one methodology investigated was the LTV, Vought Aerospace Products Division (LTV/VAPD) integrated productivity measurement system.

Under contract to DSMC, overall project coordination was provided by Dr. D. Scott Sink, director of the Virginia Productivity Center (VPC) at Virginia Polytechnic Institute and State University, with support from Dr. Thomas C. Tuttle, director of the Maryland Center for Productivity and Quality of Work Life. Dr. Sink's associate at VPC, Marvin H. Agee, worked with Mrs. Betty B. Thayer, Price Waterhouse; Mr. Richard L. Engwall of Westinghouse Electric Corporation, Defense Group, Manufacturing Systems and Technology Center; and Mr. Shoni Dhir of LTV Aerospace and Defense, Vought Aero Products Division, to coordinate the paper tests for the CDEF and DCF/SSA models. Dr. Sink, in addition to providing overall project coordination and management, specifically worked closely with Mr. Dhir and his staff to paper test the MFPMM and the LTV Integrated Approach.

The general approach taken to accomplish the objectives of Phase III was to allow each subcontractor to be autonomous in coordinating and executing the paper test for a specific model. Four approaches were paper-tested. Figure 1 indicates the models tested and the researcher/research team responsible for the specific test.

Major Findings of Phase III

The major findings of Phase III were as follows:

—None of the three models tested will accomplish all of the objectives desired by either the government or contractors.

The Defense Systems Management College participated in the multiphased research effort and assumed responsibility for the final three phases.

—A methodology that incorporates the use of a variety of measurement and evaluation models, such as the MFPMM, CDEF, and discounted cash-flow models, is required if all desired objectives of the government and contractors are to be satisfied.

—Each of the three models tested has "soft spots," or current developmental problems, that need to be—and are being—worked on. All of these models are relatively new developments and have excellent potentials.

—Variances in operating systems, management styles, pressures and priorities, perceived problems and opportunities, and skilled/competent productivity management personnel will make it difficult to translate and transfer models and methodologies from one company to another. The problem of translation and effective transfer needs to be thought through very carefully.

—Each model tested was initially designed to accomplish certain objectives. The challenges facing defense industry management are to make a commitment to measure and evaluate productivity, and combine a set of measurement and evaluation models into an effective productivity management system. The Phase III report shows the models reviewed can be combined into an effective productivity management methodology. The report describes a methodology developed by a defense contactor that supports this finding.

—Of of three models tested, only the MFPMM actually measures productivity. The DCF/SSA model is strictly an analysis tool designed to help management and the government evaluate the merits of selected productivity improvement interventions. It is basically an analysis and decision-making tool for use in planning and forecasting.

—The Price Waterhouse CDEF model prepares performance and cost baseline data in support of commercial factory modernization or the DOD IMIPs. The CDEF utilizes a top-down analysis technique that facilitates identification of appropriate performance and cost measurement criteria, selection of improvement opportunities, and economic justification of identified investments. The cost-benefit tracking portion of CDEF can be used to evaluate productivity. Each of the three models was designed to accomplish an important part of the overall goal that DOD and contractors have established in IMIP-type programs. These models and others designed to do similar things, when viewed together, constitute a potentially satisfactory methodology for accomplishing what the government and contractors want to do. However, independent of other models and systems, each model is not sufficient to accomplish the overall goals desired by the government and defense contractors.

—The MFPMM model must be modified significantly to function in the defense contractor environment. The LTV has successfully made this conversion and has found the model useful as an integral component of its productivity management methodology. Some development issues associated with the model need to be resolved.

The Price Waterhouse CDEF model performs well against the objectives and criteria for which it was designed. The node-tree activity structure in the CDEF model can differ significantly from a company's organizational structure; therefore, it may require significant effort to develop. The LTV perceives the cost to implement the complete CDEF methodology to be high relative to alternative approaches; i.e., the development of separate cost center accounting for each Modernization Improvement Project.

The LTV found deficiencies in the DCF/SSA model (Logistics Management Institute version) and in the Westinghouse version of the DCF/SSA model. As a result, LTV is in the process of designing its own version of the DCF/SSA model.

Virginia Productivity Center Recommendations

There is a need for a more systematic and disciplined productivity management effort in the defense industry. Improved measurement and evaluation systems must play a key role. Measurement and evaluation are complex in this industry and no single model will suffice. Each of the three models tested in this study can and have played a significant role in productivity management efforts within the industry. However, Virginia Polytechnic Institute/Virginia Productivity Center believes further development of the three models is necessary. More importantly, a generic methodology for productivity management efforts within industry needs to be further developed and widely communicated.

Final Comments and Recommendations

The paper tests of the three models provided valuable information for developmental purposes. The details of the paper tests identified specific developmental needs and described how the models can be, or might be, applied in the defense contractor setting. With respect to serving as a productivity measurement/evaluation/support tool for incentive methodology, each has both strengths and weaknesses. Only a broad-scope productivity program can satisfy the joint goals of the DOD and defense contractors as specified by IMIP requirements. Thus, to expect a single model to satisfy the joint goals of the DOD and defense contractors, and to meet all the specifications for an incentive methodology, is probably unrealistic.

The three models tested in Phase III can, and have, played significant roles in productivity management efforts with the Department of Defense.

The paper tests revealed the critical need to develop a productivity management methodology for defense contractors that represents a strategy that can then be tailored to suit specific circumstances. This strategy must include planning, measuring, evaluating, and controlling.

In summary, the three models tested in Phase III can, and have, played significant roles in productivity management efforts within the defense industry. Therefore, the three models should be further developed. In addition, a generic methodology for productivity management efforts within the industry should be developed and communicated. Beyond that, the roles that the three models, and others, play in that methodology need to be understood by a broader segment of industry and government if a real impact is to be made.

A final report of the Phase III effort may be obtained from the Defense Technical Information Center.

The decision has been made by the OSD Industrial Productivity Directorate to continue the project. The Defense Systems Management College will provide the project supervision. ■

"It is far better to dare mighty things, to win glorious triumphs, even though checkered by failure, than to take rank with those poor spirits who neither enjoy much nor suffer much, because they live in the grey twilight that knows not victory nor defeat."

—Theodore Roosevelt

Figure 1. Breakdown of Responsibilities for Paper Tests

MODEL/APPROACH	RESEARCHER/RESEARCH TEAM RESPONSIBLE
MFPMM Model	Dr. Scott Sink Virginia Productivity Center (VPC), VPI
CDEF	Mrs. Betty B. Thayer Price Waterhouse Dr. Marvin H. Agee VPC-VPI
DCF/SSA Model	Mr. Richard L. Engwall Westinghouse Dr. Marvin H. Agee VPC-VPI
LTV/VAPD Integrated Approach	Mr. Shoni Dhir LTV-VAPD Dr. Marvin H. Agee VPC-VPI Dr. D. Scott Sink VPC-VIP

(Note: In addition to the integrated approach, LTV-VAPD independently "paper tested" each of the three prescribed models.)

■ *Mr. Acker is a professor of engineering management, Research Directorate, DSMC.*

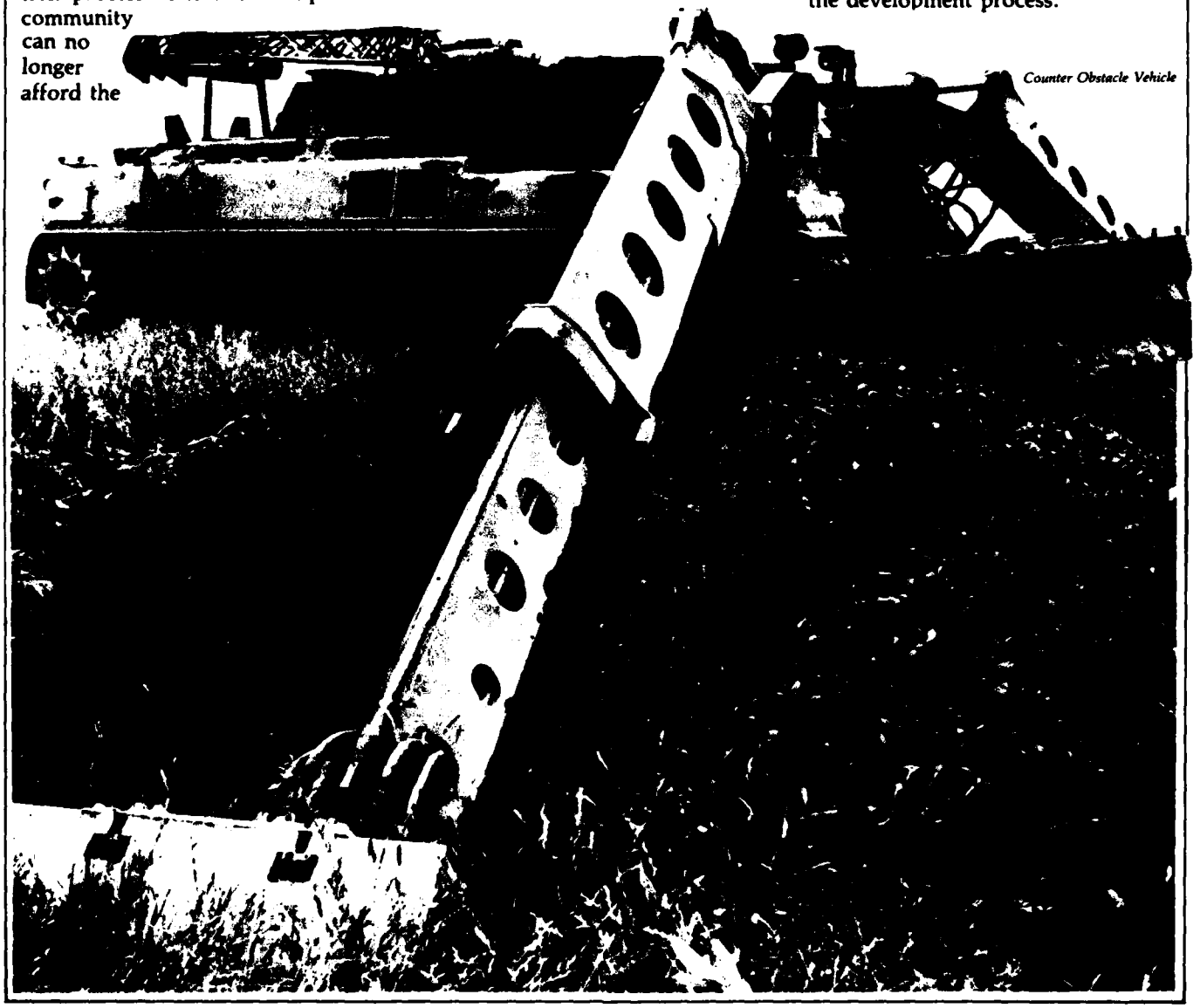
Army Materiel Command Streamlining Initiatives

General Richard H. Thompson, USA

This story is adapted from remarks prepared for General Thompson, commander, U.S. Army Materiel Command, to the National Conference on Acquisition Streamlining.

We have undertaken initiatives in the Army Materiel Command to streamline or otherwise improve the materiel acquisition process. The DOD acquisition community can no longer afford the *business as usual* approach. We must shorten and streamline the acquisition process if we expect to field timely, quality, and cost-effective equipment to our forces. I emphasize cost-effective equipment. Current and projected budget cuts under the Gramm-Rudman Act demand that we get the best deal for every defense dollar spent. Even then, we'll likely fall short of our needs.

Today's challenges demand a multidimensional approach. We recognized this in structuring changes to what we do, how we do it, and the supporting framework. Several of our streamlining initiatives have already been addressed, including efforts to reduce specifications and standards. I will address related but different efforts that fit the streamlining theme, beginning with our initiative to streamline the development process.



Counter Obstacle Vehicle

Our 4-year development goal is the heart of an overall larger objective to reduce the entire systems acquisition process, from the traditional 11-15 years to 7-9 years, or even less for non-development items. The driving force behind these efforts is to get the required equipment to our soldiers and to get it there *when* needed.

Basically, we expect to achieve a 4-year developmental goal by going for the *good enough* now (with proven technologies) and inserting new technologies later to offset changes to the threat. Technological changes will be accommodated downstream through preplanned product improvements. Another important contribution to a reduced development cycle is demonstrating technologies in a troop environment during early life-cycle phases *before* we enter development. We do this by placing a breadboard prototype system in the hands of user troops to utilize in accordance with a limited operational and organizational concept. In this way, we can gain insight into the maturity of the technology as well as the operational concept. We can gain a better appreciation of matters like man-machine interface requirements, impact on command and control, soldier acceptability, and hardware performance. We've gained good experience in prototype system testing at the 9th Division test bed, Ft. Lewis, Wash., where we employ technology to improve the Army's light divisions.

We must have an early and firm consensus on system operational requirements before we enter development. We no longer can afford wholesale requirements changes, or demonstrate new technologies during system development. One of the best ways to streamline the acquisition process is to use more non-development items (NDI), which is not a new concept; we've been buying NDI for as long as we've had a procurement program. Now, we're increasing NDI emphasis as one of the preferred ways to acquire equipment. It saves time and money. As this acquisition spectrum indicates, there are many choices between classic off-the-shelf NDI and use of NDI in full development; i.e., the Baretta Pistol is being purchased as is; a heavier suspension system and camouflage paint are the only enhancements to the Commercial Utility and Cargo Vehicle (CUCV); the Counter Obstacle Vehicle is an assemblage of various standard subsystems and components; finally, the Apache Helicopter, although considered full development, uses standard components and subsystems. When we use NDI, we get proven, state-of-the-art technology to satisfy the requirement; we pay little or no direct research and development (R&D) costs since the design is complete; the time to field is reduced through elimination of R&D phases and production lead time; finally, the Army becomes a strong customer in the commercial market and begins to influence the direction and trend of commercial equipment, thus facilitating further NDI acquisitions.

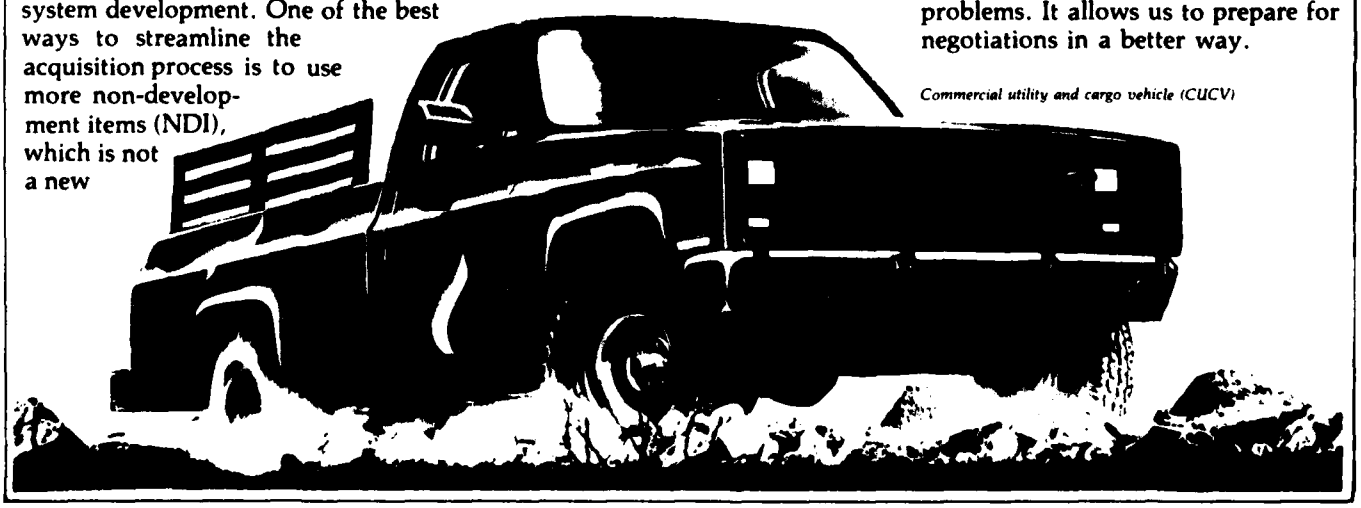
When we use non-development items, we get proven, state-of-the-art technology.

Efficient management of testing is a *must* if we expect to reduce acquisition time. We will conduct continuous evaluation of testing throughout the materiel life cycle to assure there is adequate but not excessive testing. When you see the same or similar procedures during contractor testing, government development testing, and government operational testing, it's easy to conclude it isn't *smart* testing. These redundant proofs of compliance represent a waste of precious resources and time.

Regarding testing, we've established the policy, procedures, and other tools required to do a better job. Our efforts are geared toward realistic testing that is accomplished faster by the development and testing communities, with industry and the independent evaluator working as a team.

We are improving the contracting process. Procurement bridges the gap between the determination of our needs requirements and the actual delivery of a product/service. It provides the vehicle for specifying what we want; when and where we want it; how, and how much we will pay for it. Being rooted in law, the procurement process is dynamic. While basic steps are relatively constant, procedures to accomplish them change. Most changes are driven by legislative action and some are driven by our initiatives to improve the process. Concentrating on the latter, I begin with our cost-control initiatives.

To improve our ability to obtain fair and reasonable prices, we have established a new cost-tracking system for 25 major Army contractors. This system tracks actual costs, direct and indirect, and provides early warning of problems. It allows us to prepare for negotiations in a better way.



Commercial utility and cargo vehicle (CUCV)

We are using should-cost analysis for the first and fourth year production contracts of our major sole-source system buys, and for multiyear contracts over $50 million. Review by the DOD inspector general indicated that the Army Materiel Command is a leader in using should-cost analysis. The inspector general indicated that negotiated savings when using should cost was 15 percent versus 7 percent based on normal cost/price analysis. Since fiscal '83, our should-cost analyses have resulted in negotiated cost reductions of more than $2.5 billion. We intend to increase should-cost applications this fiscal year.

We continue to improve business clearance procedures by insisting that our negotiators reconcile their position with audit findings and recommendations. We conduct a follow-up review to assure the negotiated price is fair and reasonable, and tracks to the reconciled position and the independent government cost estimate.

To increase control of Army contracts administered by DCAS, we require contracting officers to participate in the forward pricing of overhead rates. This ensures our interests are protected and that we can provide input to issues arising during forward-pricing negotiations. It allows us to gain confidence about adequacy of the negotiated rates, and provides the Army contracting officer more visibility into the Army business base.

The second thrust is to improve the quality of procurement operations. We revitalized our acquisition management review program. Review teams conduct periodic assessments of our subordinate contracting activities to assess the effectiveness and efficiency of procurement operations. This past fiscal year, we completed seven reviews; our goal for fiscal '86 is 16.

Our FA97 Program has improved career progression, including general officer positions and increased opportunity for command. We improved training opportunities to include 30 officers per year training with industry and 10 more training with the Defense Contract Audit Agency. The dual-track career path was changed, thereby allowing many procurement officers to serve most of their careers within the procurement arena rather than rotating to field or non-acquisition duties.

Our satellite education network became operational in January 1985, and brings the classroom to the student; six functional courses, including basic and advanced procurement courses, are provided. We have 15 operational receiving sites and trained more than 1,600 personnel. Soon, 22 receiving sites will be operational to assist in reducing training backlog and enhance professional development of procurement personnel.

We are taking steps to improve productivity. We intend to improve procurement efficiency via automation. I directed development and fielding of an automated procurement system, which will build on the success of our automated procurement test bed, and will fully integrate it and other automated acquisition systems into a truly integrated and paperless system. Development of this system will not follow the low-risk, quick-fix approaches of the past; rather, it is in line with the development streamlining objective. It is a big-investment, medium-risk program with a target completion date of December 1987. Automation, while not solving all problems, will improve productivity.

A third thrust is to improve the public's confidence in the procurement process, which demands a smart business approach in everything we do. Primary focus is on competition for basic systems, components, and spares. Competition is the foundation of our defense against overpricing. Recently, we initiated measures to improve competition, and our competition White Paper outlines the overall plan of attack to increase competition in the Army Materiel Command. Competition management offices and competition advocates are established at headquarters and at each buying command to manage and coordinate efforts to improve competition. All AMC personnel impacting on competition are having job performance standards rewritten to reflect that responsibility. We established competition awards programs at MSCS to reward superior performance. In fiscal '85, we presented 25 awards totaling $38,000. I directed each MSC to publish a competition advocate shopping list projecting all buys at the MSC for the next 12 months; these are updated quarterly and widely publicized. This shopping list is available to all interested business concerns and should increase competition and the production base. Plans to improve competition include competing government-owned/contractor-operated ammunition plants. The Lake City Army Ammunition Plant in Missouri was competed recently, and we recorded a cost avoidance of $15 million over the previous contractor's projected cost estimate. We are reviewing the Mainz Army Depot in Germany for possible competition in fiscal '86, as well as one or two other ammunition plants. Eventually we expect to compete most GOCO plants.

Another near-term competition plan involves promulgating a management information system to streamline competition information at major contracting activities, including tracking subcontracts competed by prime contractors on sole-source contracts. We are developing aggressive acquisition strategies for major systems to enhance competition throughout the life cycle. We plan to dual-source most components, and many end-items; eliminate proprietary data rights where possible and obtain complete technical data packages suitable for competition.

To improve spare parts and component competition, we initiated a reverse engineering pilot program, which will enable developing technical data packages suitable for competition on many spare parts and components now purchased sole-source. Regarding spare-parts breakout, experience shows that items broken out from the prime contractor for competition, or purchase from the actual manufacturer, resulted in an average savings of 24 percent. More than 74,000 items managed by AMC have been reviewed and coded for competitive purchase. We increased competition from 28 percent, or $3.8 billion in fiscal '81, to 34 percent, or $8 billion in fiscal '85. Our goal for fiscal '86 is 37 percent, or $8.5 billion. Competition has been institutionalized as part of AMC materiel acquisition strategy.

I firmly believe the *business as usual* approach to materiel acquisition cannot succeed in today's or tomorrow's acquisition environment. We must employ all of the new ideas and common-sense approaches we can muster—from every corner of the DOD community and from our industry partners.■

INSIDE DSMC

People on the Move

Abraham

Bottoms

Coyne

Peoples

Puscheck

Laurel C. Abraham is a computer programmer/analyst in the Program Manager's Support System Directorate, Department of Research and Information. She was a programmer, Personnel Information Systems Directorate, Military Personnel Center, before joining DSMC. Ms. Abraham received a B.S. degree in physics from the University of Maryland, and is working toward a master's degree in computer science at George Mason University.

Albert M. Bottoms has been appointed to the Navy Chair, Executive Institute. He had been director of operations and management, Naval Air Systems Command, before coming to DSMC. Mr. Bottoms holds a B.S. degree in chemical engineering from the University of Pennsylvania, an M.S. degree in physical chemistry from Iowa State, and an M.S. degree in oceanography from the Massachusetts Institute of Technology.

Captain George K. Coyne, Jr., USN, became dean of the Department of Research and Information in May. His last assignment was weapon systems acquisition management coordinator in the Office of the Director of Naval Acquisition Support. Captain Coyne is a 1958 graduate of the U.S. Naval Academy. He also holds a bachelor of science degree in aeronautical engineering from the U.S. Naval Postgraduate School.

Lieutenant Colonel Thomas E. Peoples, USA, is the special assistant for contractual matters, Department of Research and Information. Previously he was military assistant to the assistant secretary of defense for acquisition and logistics. Lieutenant Colonel Peoples received a B.S. degree in business administration from the Benedictine College, and an M.S. degree in international relations from Troy State University. He is a graduate of PMC 82-2.

Dr. Herbert C. Puscheck has been appointed to the Army Chair, Executive Institute. He was assistant deputy chief of staff for program budget, Hq, U.S. Army Material Command (AMC) before coming to DSMC. Before joining AMC, he was associate director of the Selective Service System. Dr. Puscheck holds a B.S. degree from the U.S. Military Academy and an M.S.S.E. and a Ph.D. (operations research) from Purdue University.

Additions

Cindy Cano, Research Directorate.

Toni Grimes, Policy and Organization Management Department.

Deborah Lewis, Publications Directorate.

Melanie Lonsdal, Office of the Commandant.

Teresa Wood, Department of Administration and Support.

Losses

Captain L. C. Evans, USN, dean, Department of Research and Information, retired after 27 years of active duty. He was graduated in 1959 from the U.S. Naval Academy, Annapolis. Captain Evans has accepted a position with the Planning Research Corporation (PRC), McLean, Va.

Darlene Miller, Publications Directorate, to Atlantic Research Corporation.

Judy Milling, Graphic Arts Division, to Hoffman Building as a GS-11.

Promotions

SSG Willie R. Chatman, USA, Office of the Commandant, to E-7.

Senator Nunn Receives Forrestal Award

The Honorable Sam Nunn, United States Senator from Georgia, has been presented the James Forrestal Memorial Award for 1985 by the National Security Industrial Association (NSIA).

The Forrestal Memorial Award, presented annually since 1954 when awarded to President Dwight D. Eisenhower, is bestowed by NSIA on an American whose leadership has promoted significant understanding and cooperation between industry and government in the interest of national security.

Senator Nunn is the ranking democrat on the Armed Services Committee, where he has played an increasingly important leadership role in the national security arena. From spurring NATO to improve its level of readiness to joining Senator Barry Goldwater in a comprehensive review of our own defense department's organization, Senator Nunn has found support for his defense initiatives on both sides of the political aisle. Even the Soviet Union has agreed to discuss nuclear risk reduction centers, a Nunn-sponsored concept to reduce the risk of a nuclear war triggered by accident or miscalculation. ■

Acquisition

(Continued from page 12)

—Identify the current ('86-'88) affordable baseline (common denominator) for the ACCS by blending hardware, software, and communications concepts from ACCS programs and field-user efforts.

—Identify logical breakpoints or events to transition between the baseline and the future. Most breakpoints will be software driven.

—Focus all C^3I resources on this effort at the expense of local initiatives.

—Field the baseline as soon as possible.

—Begin the iterative approach toward the future.

Summary

Army tactical C^3I is an extremely complex, interwoven system. Automation of this system constitutes an inflection point in the evolution of the C^3I system. Currently, both formal Army programs (ACCS) and field users are attempting to address the problems associated with automation. The problems focus on our inability to project into the future with sufficient clarity and detail to develop detailed requirements specifications. Evolutionary acquisition recognizes these problems and provides a strategy to accommodate them. The nature of the automation problem is such that we must simplify as much as feasible to increase the probability of success. To do this, we must do the following within a conceptual framework based on an introspective examination of our total goals and objectives; develop a common software architecture, focus on commonality of hardware, and adopt a common instructional set architecture.

A testbed is required to link the developers to the field users during iterative development. The best attributes of all existing efforts must be blended to constitute the baseline. All available resources must then be focused on this singular problem.■

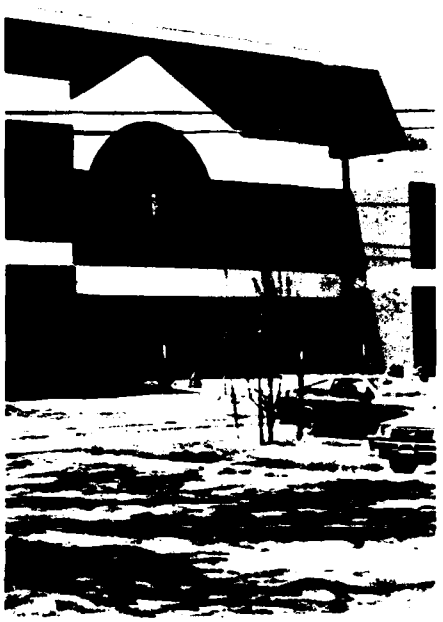
Whenever in this publication "man," "men," or their related pronouns appear, either as words or parts of words (other than with obvious reference to named male individuals), they have been used for literary purposes and are meant in their generic sense.■

CONTRACTING

DOD Prime Contract Awards in FY 1985

1. McDonnell Douglas Corporation
2. General Dynamics Corporation
3. Rockwell International Corp.
4. General Electric Company
5. The Boeing Company
6. Lockheed Corporation
7. United Technologies Corp.
8. Howard Hughes Medical Institute
9. Raytheon Company
10. Grumman Corporation
11. Martin Marietta Corporation
12. Westinghouse Electric Corp.
13. Textron, Inc.
14. Honeywell, Inc.
15. IBM
16. Sperry Corporation
17. General Motors Corporation
18. The LTV Corporation
19. Litton Industries, Inc.
20. ITT Corporation
21. Texas Instruments, Inc.
22. Allied Signal Corp.
23. RCA Corporation
24. Tenneco, Inc.
25. Northrop Corporation
26. Ogden Corporation
27. TRW, Inc.
28. Ford Motor Company
29. Eaton Corporation
30. Royal Dutch Shell Group
31. CFM International, Inc.
32. FMC Corporation
33. Congoleum Corp.
34. The Singer Company
35. Teledyne, Inc.
36. Harris Corporation
37. AT&T
38. United States Phillips Trust
39. GTE Corporation
40. Gencorp, Inc.
41. Hercules Incorporated
42. Goodyear Tire & Rubber Co.
43. Pan American World Airways, Inc.
44. Chevron Corporation
45. Amerada Hess Corporation
46. Sanders Associates, Inc.
47. Motorola, Inc.
48. Oshkosh Truck Corporation
49. Exxon Corporation
50. Emerson Electric Co.
51. E-Systems, Inc.
52. Massachusetts Institute of Technology
53. Charles Draper Stark Lab.
54. Loral Corporation
55. Atlantic Richfield Company
56. Morton Thiokol, Inc.
57. The Coastal Corporation
58. Johns Hopkins University
59. The Aerospace Corporation
60. British Petroleum Co. PLC
61. Control Data Corporation
62. Gould, Inc.
63. Burroughs Corporation
64. Soberbio, Inc.
65. Computer Sciences Corporation
66. Todd Shipyards Corporation
67. The Mitre Corporation
68. Sun Company, Inc.
69. Mobil Corporation
70. Caltex Petroleum Corporation
71. The Penn Central Corporation
72. Capital Marine Corp.
73. Science Applications International
74. Ashland Oil, Inc.
75. E. I. DuPont de Nemours and Co.
76. Texaco, Inc.
77. Lear Siegler, Inc.
78. Phibro-Salomon, Inc.
79. Kuwait National Petroleum Co.
80. Tracor, Inc.
81. United Industrial Corporation
82. ICI American Holdings, Inc.
83. Samwhan Corporation
84. Duchossois Industries, Inc.
85. Transworld Oil Ltd.
86. Hewlett Packard Company
87. Marine Transport Lines, Inc.
88. Dynalectron Corporation
89. Fairchild Industries, Inc.
90. BDM International, Inc.
91. Amoco Corporation
92. Figgie International Holdings, Inc.
93. Eastman Kodak Company
94. Motor Oil Hellas Corinth Refinery
95. Logicon, Inc.
96. Rolls-Royce, Inc.
97. Day & Zimmermann, Inc.
98. Mason & Hanger-Silas Mason Co., Inc.
99. Sundstrand Corporation
100. Pace Industries, Inc.

Speaker and Agenda Ready For DSMC 15th Birthday



Dr. John S. Foster, Jr., first chairman of the DSMC Policy Guidance Council, will be the guest speaker when the College observes its 15th anniversary July 23. He is the vice president of science and technology, TRW Inc. Dr. Foster was director of defense and engineering for the Department of Defense in 1965. An ex officio of the Defense Science Board, to which he is now a senior consultant, he is a member of many organizations including the President's Foreign Intelligence Board.

A full agenda is planned for the 15th birthday fete beginning at 0915 hours on the DSMC campus. To name a few, the new building will be dedicated; there will be a cake-cutting ceremony by dignitaries; and, there will be an autograph session of the new *DSMC History* by David Acker.

Luncheon will be served at noon in the Officers' Club with Brigadier General Charles P. Cabell, Jr., USAF, commandant, giving the address.

The cost of the luncheon is $8 (includes gratuity).

Please Return Your Luncheon Reservation Form

Name: _____ Phone: _____

Title: _____ Number of persons in your party _____

Address: _____

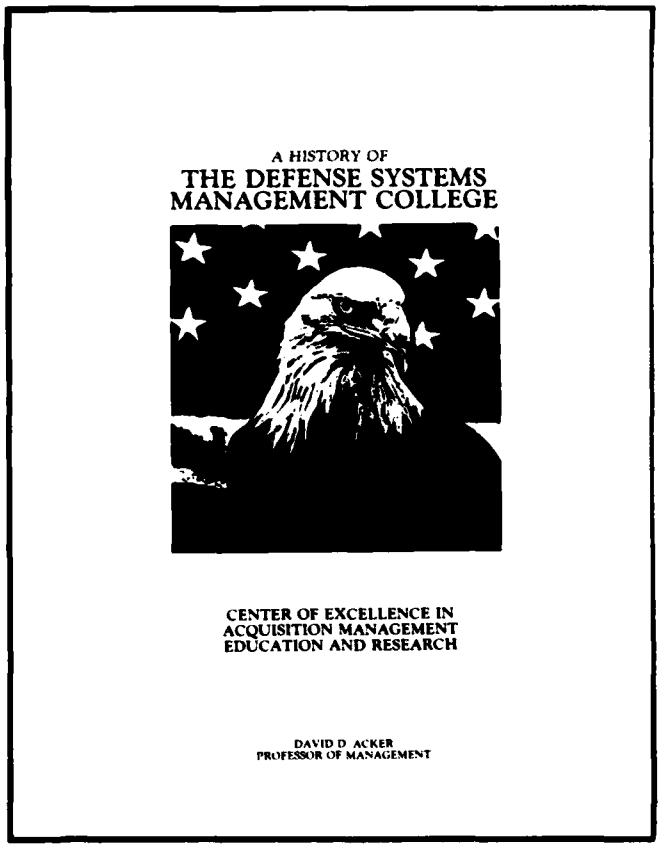
_____

Please remit check and luncheon reservation form (no cash please) made payable to "Activity Fund" no later than July 1. Send correspondence to Defense Systems Management College, ATTN: Protocol, Building 202, Fort Belvoir, Va. 22060-5426.

Please Note: Seats for the luncheon are limited. Please make your reservation early. Seating will be assigned on a first-come, first-serve basis. Sorry, no refunds.■

COMING IN JULY

A HISTORY OF DSMC



"This is the first definitive history of the DSMC. It was written by someone who has been associated with the College from its inception in 1971 . . . . The author, Dave Acker, has 'seen it all'."

—Charles P. Cabell, Jr.
Brigadier General, USAF
Commandant

- **Over 300 illustrations**
- **Over 625 photographs**
- **Almost 500 pages**

Available at DSMC's Fifteenth Anniversary Celebration on 23 July 1986 at Fort Belvoir.
After the celebration, copies of the history may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Program Manager

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